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WEEKLY

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31 January – 6 February 1985

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Vol 4 No 5

Acorn hints at a third BBC micro

ACORN has given the first public indications that a successor to the BBC micro is being developed and will be launched in the near future

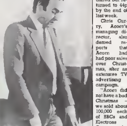
"We are now one year into our new four year contract with BBC Enterprises, and I certainly wouldn't rule out the possibility of a new BBC machine during the course of the contract," said Chris Curry

Acorn's chairman, Hermann Hauser hinted strongly that such a new BBC machine could be announced in the near future He said "When it appears, we hope it will have a beneficial effect on our stock market price."

QL GETS DISCS – P13

Electron and Spectrum + clash

ACORN has announced a spectacular price cut for the Electron and a trade-in scheme for the BBC B



The Electron price has fallen by £70 from £199 to £129 – making it the same price as the Spectrum +.

The BBC B will, however, remain at £399, but Acorn has set up a scheme to enable customers to get £80 off if they trade in any other micro at the same time Some stores, though, have begun discounting the BBC machine – even down to £399

The announcements came after Acorn's share price on the Unlisted Securities Market had fallen to 43p, causing concern in the City. The share price then rose to 49p after the cuts had been declared but returned to 44p by the end of last week.

Chris Curry, Acorn's managing director, also denied reports that Acorn had had poor sales over Christmas, after an extensive TV advertising campaign.

"Acorn did not have a bad Christmas – we sold about 100,000 each of BBCs and Electrons Over the whole of 1984, we sold around 420,000 machines – about 230,000 BBCs and 190,000 Electrons I would estimate that our market share now is around 25%."

Commenting on Acorn's financial situation, chairman Hermann Hooser said "We need to turn over only a small proportion of our stock to solve any of the cash problems we may have in 1985"

Two representatives from

continued on page 4 ▶

Stores cut Spectrum to under £100

BARGAINS galore can be found on the rubber-keyed Spectrum, now that Sinclair has discontinued manufacture of the model for the UK market – opting instead for the Spectrum +

Currys, Dixons and W H Smith are all selling the rubber-keyed version at virtually cost price to clear stock At Currys, the machine now costs £99 99 At Dixons and W H Smith it is priced at £99 95

These price cuts mean that if customers buy a Spectrum at just under £100, and send off for Sinclair's £20 upgrade, they can save £10 off the shop price of the Spectrum+, which is now £129 95

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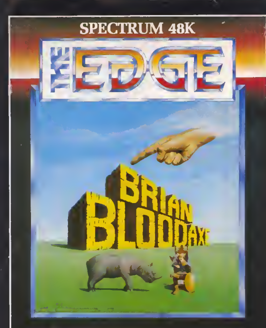
New machines for Amstrad

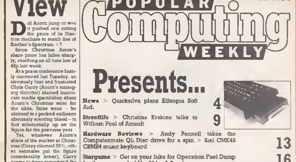
AMSTRAD will launch four new computers this year, according to managing director Alan Sugar

The four machines will offer a built-in disc system and be fully software compatible with the company's existing CPC464 machine One of the four is expected to be a portable version of the 464 with a built-in display and discs

The first of the new machines is expected to be launched in the near future.

INSIDE) SIEL'S NEW £125 MUSIC KEYBOARD REVIEWED


SPECTRUM 48K
THE EDGE
BRIAN
BLOODAXE



View

Did Acorn jump or was it pushed into cutting the price of its Electron machine to match that of Sinclair's Spectrum +?

Since Christmas Acorn's share price has fallen sharply, reaching an all time low of 43p last week.

At a press conference hastily convened last Tuesday, an obviously hurt and frustrated Chris Curry (Acorn's managing director) blamed inaccurate media speculation about Acorn's Christmas sales for the slide. Sales were – he claimed to a packed audience obviously scenting blood – in fact substantially up on the figure for the previous year.

Yet, whatever Acorn's share of the market at Christmas (Curry claimed 25%, other estimates put the figure considerably lower), Curry seems to have misjudged the reason for the City's loss of confidence in his company.

The real worry is that the BBC micro is now an elderly machine yet there is no sign of Acorn being able to replace it. Here cutting the cost of the Electron will not help and it is still quite mystifying that Acorn has chosen to leave the BBC micro at £399. Is the Electron really only one-third as good as a BBC machine? Or is the BBC machine at £399 a bad deal?

Following close questioning on the subject of a follow-up for the BBC micro both Chris Curry and chairman Herman Hauser effectively revealed that such a machine is indeed planned. Hauser commented that any such micro would be "as radical a machine in its time as the BBC was when it was launched."

None of which can be expected to do great things for sales of the BBC micro itself.

That news of a possible new BBC should have been revealed in such circumstances must be pretty heartbreaking for Curry and Hauser.

Presents...

Futures...

Mental arithmetic on the C16... User designed character generator program for the Spectrum... turn your QL into an alarm clock

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Computer Trade Association Magazine of the Year

Quicksilva launches counterpart to Band Aid

QUICKSILVA is to launch a software counterpart to Band Aid, whose song *Do They Know It's Christmas?* raised millions of pounds for the Ethiopian Famine Appeal.

The company plans a software package – *Soft Aid* – the profits of which would go to help victims of the Ethiopian famine

"I'm getting together a compilation tape of successful titles from various software houses, from which all the profits would go to Ethiopia. Ocean, Beyond, and Bug-byte have all agreed to contribute games – Quicksilva too, of course," explained Quicksilva's managing director, Rod Cousens.

Rod is also hoping distributors and dealers will agree to take a cut in their profits from the tape to increase the money raised from the Soft Aid tape.

● Quicksilva has cut back drastically its presence in the US The company has retained its US head, Carl Ziegler, in a licensing capacity, but is no longer manufacturing and distributing in the States

"The software market in the US is so bad that something had to be done," said Quicksilva's managing director Rod Cousens "While I believe Quicksilva is a leading company over here, it is certainly not that over there.

Ziegler and two others will now be looking for US products for Quicksilva to market over here, and setting up licencee with American companies for Quicksilva titles.

"The US facility may also be moving from Texas to the West Coast, where Argus Press Software, our parent company, has business interests The market in the States is centred around California in any case "

Spectrum cuts

◄ continued from page 1

Some stores, including Lasky's, have taken this route themselves "We have withdrawn the old Spectrum altogether," said Philip Holton of Lasky's "Sinclair will be upgrading the stock for us."

One store Boots, is not discounting at all. "We are selling the Spectrum at £129 95, and we are not planning to drop the price," said Boots' Peter Frost "We do not intend to reduce it so that we are selling it at a loss We were given very little notice of the price cut, and our stocks were higher than those of other computers as the Spectrum was our biggest Christmas seller "

However, price cuts in the home computer industry have dented confidence in the City Sinclair's long-planned stock market listing now appears to have been put back until the summer, and it seems likely that the company will go for a placement on the unlisted securities market rather than a full listing

● A price reduction for microdrive cartridges for the QL and Spectrum, promised last year by Sinclair, is now apparently "in the offing", according to a Sinclair spokesman.

Also, upgrades to Psion's bundled QL software packages are likely to be made available to Qlub members shortly

"Qlub members will be the first to receive any up-date versions as and when they occur While there is no specific date this will be in the short term," the spokesman continued.

According to Charles Davies, Psion's technical director, "The plan was that the packages would be up-graded within a year Psion has done the work for the QL upgrades The timing of the offer is up to Sinclair "

Oric directors plan buy-out

ORIC is to launch its new Stratos computer in France this week

At the same time Oric directors Barry Muncaster and Paul Johnson are negotiating to buy out Oric from its parent company Edenspring

The pair bought Tansoft, the software company, which up to now has produced titles solely for the Oric machines, last Autumn.

continued on page 5 ►

Electron and Spectrum + clash

◄ continued from page 1

retail stores supported Chris Curry's claim that Christmas sales had been good Peter Hopper Dixon's senior computer buyer, said, "Business in home computers was good especially with Acorn, Amstrad, Commodore and Sinclair machines " For Lasky's, Mike Taylor said, "The BBC has sold very well, considering that at £399 it is at the top of the home computer range "

An independent survey of the 1984 home computer market, by stockbrokers Wood Mackenzie, however, sees Acorn's share slightly differently It puts Acorn's 1984 sales at 215,000, as against 788,000 for Sinclair and 425,000 for Commodore, giving Acorn around 12 5% of the market

Although no price cut for the BBC is planned, Acorn does not rule it out altogether "The non-reduction stands for the moment – we believe the machine is still commercially viable at £399 The £50 trade-in is an extra incentive A substantial number of people buy BBCs as up-grades from other computers," said Chris Curry "The QL with a so-called 32-bit chip and 128K, for example, made no difference to our BBC sales."

He added that he didn't know what Acorn would do with the traded in old computers

Retail stores are however, able to opt out of the scheme W H Smith, for example, will not be offering £50 in exchange for an old micro. It has instead discounted the BBC down to £339 Boot's also, is selling the BBC down to a flat £349

With the nod of the government's Micros in Schools scheme, Acorn is launching its own Acorn Micros in Schools plan to capitalise on the 74% share the BBC already has in schools No details of this scheme are yet available.

Addictive – from soccer to software

ADDICTIVE Games' follow-up to the enduringly successful Football Manager *has just been released.*

Called Software Star, *it bears certain resemblances to its predecessor Rather than managing a football team, the player is managing a software house, with a brief from the directors to make profits of £10,000 in the first year In addition, you need to realise your own ambition to rise from being a nobody to being a 'software star' among programmers*

Sales success of your various products depend on magazine reviews, amount of advertising booked, company usage, productivity, and the quality of the product All these factors are controlled by the player.

Available for the Spectrum, Commodore 64, and Amstrad CPC 464, Software Star *costs £7 95 on each machine*



Oric

◄ continued from page 4

"There is a long way to go in our discussions, but we are talking to investors with the idea of putting a consortium together," said Barry Muncaster, who is a director of both Oric and Edenspring. "We would like to tighten up Oric quite a bit. The industry is in a sticky position and we have had difficulty retaining our market share. It would also be sensible to have Oric and Tansoft totally integrated."

Barry also confirmed that Oric's 1985 plans are largely aimed at overseas markets. "We're not very interested in the UK market now – we don't sell in the UK, while our French market is still very strong. Our new Stratos micro is being launched in France this week. If it sells well on the Continent, it will be launched here in March, although we will probably offer it in the UK as an up-grade from the Atmos" (see *Popular Computing Weekly*, January 10).

Commodore axes 100 Corby jobs

COMMODORE has axed 100 jobs at its Corby manufacturing plant, reducing the staffing level to 600.

The cut is due to a fall in demand after Christmas. Commodore's general manager, Howard Stanworth said, "The home computer market has always been highly seasonal.

This pattern is reflected in our policy of recruiting a proportion of staff on a temporary basis for the Christmas peak only.

"This year the trend has been even more pronounced than usual, and consequently it is necessary to trim the level of permanent staff for the time being."

Prism's problems continue

PRISM Microproducts has cut the price of its VTX5000 modem to £69.95.

The company has also made cuts in its staff and is concentrating mainly on just two areas of business as its cash-flow problems continue.

"We are now concentrating on the portable Wren machine, and the distribution side," said Prism chairman Richard Hease.

Prism distributes machines for Sinclair and for Enterprise. It has been in negotiations with Sinclair to extend its credit limit with the company, and speculation has arisen that Sinclair may withdraw its machines from Prism.

A Sinclair spokesman declined to comment on this possibility.

Minder ready for March?

THE long-awaited *Minder* computer game, based on the Thames TV series, should be in the shops in March. "We still have some finishing off to do, and as yet have no firm release date. It may be ready by the end of February," said Neil Rawlinson of DK'tronics, which is producing the game.

Minder will take the form of a graphic adventure, with the player as Arthur Daley attempting to trade and barter his dubious wares. The game will feature a possible 38,000 characters to trade with – although they won't all appear in one game – so that the game will play differently each time.

DK'tronics is planning to only release three or four licensed titles this year. "Now that the software industry is flattening out, this seems a good way to do it," said Neil. "The next title after *Minder* will be the computer version of *Popeye*. After that we have licensed the cartoon character *Hagar the Horrible*, who appears in the *Sun* each day.

"We are also hoping to do another title in conjunction with Thames TV in the autumn. Thames will then be showing a new series, which is designed to appeal to the same audience as that which watched *Minder*. We hope to be programming something based on that."

Minder will be priced at £9.95, and will be released simultaneously for the Spectrum, Amstrad CPC 464, MSX and Memotech micros. A Commodore 64 version is also in preparation.

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'Thousand Screen'
Versions
of



The disk version of Quo Vadis for the CBM64 is now available. The disk comes free with our revolutionary 'Quo Vadis Generator'. This free program allows the player to choose from one million different versions of Quo Vadis.

•

£12.95 disk · **£9.95** cassette



Letters

What a silly billy

After reading your article on an electro rock band (January 10 issue) I have found a couple of very silly mistakes and will right them for you.

A) The name is not *Noise of Art*, it is *Art of Noise*

B) The record company is not *Ying Yang Yumm*, it is *Zang Tumm Tumb* (ZTT not YYY)

Please print this to show what wallies you are!

Trevor Horn's Pink Rimmed Glasses
14 Old Hall Close
Wellington
Telford
Shropshire

Dear Mr Glasses. I have found a couple of very silly mistakes in your letter and will right them for you.

A) Mainframe's record *is* called *Noise of Art*.

B) Their record company *is* called *Ying Yang Yumm*.

I think it might be a parody or something.

Alternative view

Further to the letter from Mr Williams concerning the Amstrad in the letters page (December 20 issue) I am writing to put an alternative point of view

While I admit that there are some aspects of Locomotive Basic that leave something to be desired, I do feel that in producing what is a very comprehensive language in, I believe, something like six months they have done a good job

Mr Williams' point on the subject of breaking off from a tape operation shows some signs of naivity on the subject of operating systems. All systems use buffers of some form for this sort of operation and it seems to me that some common sense on the part of the operator is needed here to avoid problems

With regard to the subject of software updates I think that he will find Amstrad quite happy to help him without his £20 In fact I purchased a copy of *Amsword* from them and wanted to upgrade it to a disc based version. A telephone call to Amstrad and the requisite information arrived within three days

The final point mentioned by Mr Williams on the modulator version of the CPC464 is easily covered Any manufacturer of volume goods has to place an order some time in advance of its requirements At that time it may have no real idea of the sales volume and in order to play safe will only order the number of units that it can off-load on to its distributors. This means, however, that when the product sells like the proverbial hot-cakes it is stuck with its original order quantity and any shortfall will have to be reordered with a corresponding lead time. In short Amstrad probably played safe and only ordered complete units that they could sell like their 'Hi-Fi' systems Any up-date like a proper 8-bit printer port, or as Mr Williams wants – a modulator version – will have to wait at least until the second half of 1985 for the next bulk purchase by Amstrad.

As a general utility machine I feel that the CPC464 (why did they chose such a cumbersome name) will be with us for some time yet.

Nigel Clarke
Haselmere
Bucks

MICROCOMPU

Hallo Mr Curry? Sir Clive wants to know how many Spectrums for the whole company?

The pros and cons

Having purchased the excellent Amstrad CPC464 I then weighed up the pros and cons for joining the CPC464 user club, run by Amsoft and I came to the conclusion that for software discounts only it just isn't worth it.

The user club discount scheme represents, at best, very little saving and in some cases a loss, because the same software in official Amsoft guise can be bought cheaper elsewhere For example, Soft 116 Devpac assembler/disassembler originated by HiSoft is listed at £24 95. Its Amsoft User Club price is £21 75 Yet, if bought direct from HiSoft, it costs only £19 95 including VAT

If HiSoft can sell it for that, why can't Amsoft?

Also, a friend of mine ordered a copy of *The Concise Firmware Specification*. Forty-two days and two phone calls to Amsoft later there is still no sign of the goods

Brian Pedder
Dunstable
Beds

MUSIC
VOUCHER
3

Free ticket offer

200 free tickets
for the 15th ZX Microfair

Popular Computing Weekly is giving away 200 free tickets for the 15th ZX Microfair – to be held at Alexandra Palace on Saturday February 9 – to the first 200 people who submit either programs for the ZX Spectrum or QL or letters for possible publication in the magazine **before February 2.**

All you have to do for your free ticket is to enclose a stamped addressed envelope with your program or letter submission

Remember – the offer applies only to programs received by us **no later than midday on February 2.**



Poel's opinion

Christina Erskine talks to William Poel – head of Amsoft

Amstrad were very much 1984's young pretenders In April, the low cost hi-fi and TV manufacturers announced they had developed a home computer, which would be in the shops in June. First deliveries of the CPC 464 actually took place on June 11 – an industry first in meeting delivery dates

The machine caught the public's imagination almost immediately The format – cassette, monitor and computer in one unit – was popular, programmers enjoyed working on it, and there were no serious drawbacks – good keyboard Basic, attractively priced – it was universally liked.

Two hundred thousand sales on, Amstrad is looking forward to its next computer developments I visited William Poel at Amstrad's headquarters in Brentwood, Essex to talk about the success story so far, and plans for this year

William Poel heads Amsoft, which while dealing mainly with CPC software, is a department within Amstrad rather than a separate company Previously he worked with Ambit International, the company which co-ordinated Amstrad's home computer project from the very beginning When it became clear that Amstrad was going to be in home computers for quite a while, seven Ambit staff, including William, were taken on.

"Setting up Amsoft as a distinct department was quite important for us," he said. "At the launch of the CPC, there was a fair amount of criticism on the lines of 'so Amstrad is into computers this year, next year it'll be microwaves' We wanted to show there was a level of commitment to home computers in the company."

No-one is arguing that 1985 is going to be a tough year for hardware companies, with price cuts already announced by some, and more, doubtless, on the way. William feels that Amstrad's experience of the consumer/electronics market as a whole will serve the company well.

I asked what proportion of mono to colour screens were being sold "In this country, it's about 65-35 in favour of colour Overseas, the proportion of green screens is higher – a lot are sold for business use there

"Obviously we've always been very conscious of trends within the industry, and home computers are definitely a trend like any other Hopefully, by applying consumer electronics principles, we can continue to do well I say hopefully, because the MSX companies are presumably working on the same lines, and they don't seem to be setting the world alight at the moment But then I like to think of MSX as keg beer as against Amstrad the real ale "

Amstrad's emphasis in 1985 is going to be very much centred around the disc drive as storage unit "We're trying to create the image that cassettes are a very bad medium for data storage and software The peculiar British passion for cassettes has strangled progress in this area "

But hang on a minute, the CPC has a cassette recorder built into the computers

"Last April, the market was such that we had to include it. Remember, Amstrad has always had a policy of including everything you need in the one unit."

So could future Amstrad hardware products include a built-in disc drive rather than the tape recorder?

"A built-in disc drive is certainly a more attractive prospect than a cassette, and Amstrad will be making some announcements about future hardware products shortly

"However one of the things we have always said with regard to home computers is that we are committed to the idea of portability We're not going to bring out a machine which immediately makes the old one redundant When we bring out a new machine, we want all the existing software to run on it without any problems And we've never said that the CPC464 is Amstrad's sole contribution to the home computer market

"This is why we're so concerned that programmers don't poke addresses straight in Rom and alter it And we do explain in the manual how to get around that."

So far, the software support for the CPC has been healthy, and is growing fast Amsoft has licensed about 100 programs, many of them well known from other machines Independent software houses have so far released around 70 different titles William now feels it's time to push for more disc-based packages

"Now that the disc drive is finally in the shops, we want to get going with both CP/M based programs and those on AMSDOS

"So far, we haven't had many problems with the TPA (about 39K) with CP/M Most of the CP/M software we've used is designed to fit into 48K Spreadsheets are really the only thing There's been too little space – but we got round that by writing our own Microspread We've now got a word processor running on it, and databases, and Caxton's *Brainstorm* will be released shortly

"Then we hope that people like, say, Infocom, would bring out CP/M based adventures because we don't want to discount games altogether There's no reason why we shouldn't get arcade/adventure type games on disc either, though using AMSDOS for colour access "

Does Amstrad see itself joining a price war on computers if, as widely predicted, hardware prices tumble this year

"We *could* cut the cost of the CPC 464 if it were forced on us, but we certainly don't want to There isn't a huge margin on the price of the machines, and it makes things very difficult for the retailers

"Also, I'm not sure how tough the competition will be for Amstrad. The new Atari ST range, which looks excellent on paper – so did the QL, remember – would, I imagine, take the slot above us in the market. We're also placing great stress on our overseas sales this year We've sold about 50,000 machines in Germany, and we're beginning to reach other European countries Australia, the Far East and the Middle East "

"We'd only take on the States if somebody else wanted to take the financial risk of marketing and selling the machines

"However, we have launched a promotional offer with the CPC this year – well, everyone wants a sale after Christmas, don't they? We now have a 'twelve-pack' that comes free with each machine sold – mono or colour screen."

Amstrad is popularly said to be a one-man company, that of Alan Michael Sugar, whose initials gave it its name How much does this hold true, I asked.

"Oh, very much so Alan makes all the on-the-spot decisions about anything important, which is useful because it means we can move very quickly no committees need to be convened. He has a remarkably loyal staff too, there's a saying in the company that you'll either last a week or ten years I've done a year now, so it looks like I've got another nine before I get remission "



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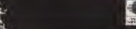
...7 busy characters, 10 lost chords, 12 hours, 48 Traffic Wardens, 95 London Tube Stations, 126,720 square feet of London, 7 million Londoners ... 943 action filled screens.

PAUL McCARTNEY'S *Give my regards to*

BROAD STREET

When the music stops, the mystery begins...

MIND GAMES







Disc dancing

Hardware *Computamate Q-Disk* Micro QL **Price** Interface only – £149; package including disc drive, interface and psu – from £299 to £574 **Supplier** CST, Scotia Road, Burslem, Stoke-on-Trent ST6 4DX (0782 811711)

A year since the QL launch and at last a disc drive has appeared for the machine

You could be forgiven for thinking that there have been disc drives for the QL for ages, as certain companies' press offices have been more productive than their laboratories, but the CST Computamate Q-Disk is the first to appear, setting the standard for the rest to follow

The review system was the top of the range model, consisting of dual 5¼ inch double-density, double-sided drives, which, along with the interface, retails at £574 – very reasonable as each drive gives 750K of storage per disc The interface uses any drives that work on the BBC micro, including 3½ inch units, and the different configurations, capacities and prices are shown in the table

Table 1

Capacity (formatted)	Single/ twin	System (including interface and power supply unit)	Price (incl VAT)
200K	Single	Teac 5¼ or 3½ inch	£299
400K	Single	Teac 5¼ or 3½ inch 40/80 switchable track	£336
750K	Single	Teac 5¼ or 3½ inch 40/80 switchable track	£367
400K	Dual	Teac 5¼ or 3½ inch	£459
800K	Dual	Teac 5¼ or 3½ inch 40/80 switchable track	£518
1 5M	Dual	Teac 5¼ or 3½ inch 40/40 switchable track	£574
Interface alone			£149

My drives were Beeb-coloured, but QL-coloured (ie, black) units will be available shortly The only thing wrong with them is the ridiculously short mains lead – mine wouldn't even reach the floor, and I had to raise my mains adaptor on a cardboard box to connect it. For a set-up costing several hundreds of pounds saving a few pence on cable seems ludicrous

The interface consists of a small circuit board with one end covered in a neat plastic box The other end ends up inside the QL, plugged into the expansion bus in the left To get to the bus, the tight-fitting cover has to be removed from the QL, and the board slid in Here I hit my first problem – the interface would not fit into the hole in my QL My machine's innards were a couple of millimetres narrower than the interface's printed-circuit board, an it wouldn't even start to go in To fit it I had to unscrew my QL (voiding the guarantee), push in the interface with the offending piece of case lifted up, then gently put my QL together again. Hopefully CST will make the board narrower when shipping them to paying customers

Having fitted the interface I had to connect it to the disc drive, but the manual made no mention of which way round the plug should go, as there was no polarising lug on it I subsequently found out that plugging it in backwards does no damage, but the instructions should mention it.

Once I had the system set up and connected, though, my problems ceased – the whole thing performed faultlessly

After switching it all on, the usual QL start-up screen is shown, but with an additional copyright message at the top After pressing *F1* or *F2*, the machine searches microdrive 1 for the boot program, instead of MDV1 as it does usually If it doesn't find it, or if there is no disc there, you drop into Basic in the usual way.

Use of the drive is simple, as QDos was written with extendability built in, and you just use all the usual commands, but using *Flp* instead of *Mdv*

You can only have up to two drives, so a directory of the second is available with the command *DIR FLP2* (The reverse of double-sided drives are cleverly handled automatically by the software, so drive numbers 3 and 4 are not needed.)

The manual I was supplied with was pretty rudimentary, describing the usual Basic file handling commands, and a few of the extra ones The first difference when using discs is the capacity – when a cartridge is formatted it prints up something like "220/220 sectors", which equals 110K. On formatting my first disc it printed an astonishing "1440/1440", giving 720K per disc. The equivalent storage on microdrive would take around 7 cartridges a cost of £35 (for the moment) instead of £2 or so for a disc. although cheaper disc configurations give less capacity, they still work out far cheaper, and of course faster To test the speed, I did some crude tests, with interesting results, shown in Table 2

The best improvement was in handling blocks of bytes, with the disc working around four times faster. Saving Basic was just over twice as fast but loading Basic was hardly any different. This latter timing is no fault of the disc drive, but due to the slow way SuperBasic loads programs – this is to be improved in the next version of the QL Rom. Loading Basic from a hard disc or Ram disc is going to be the same speed, as the time taken for the actual I/O is insignificant compared to the tokenising speed. Although these figures may not mean much, take it from me that it makes all the difference on the QL – if it had originally come out with a disc drive like this it would have been far more successful

To make program writing easier, CST have included additional commands and functions, written by the ubiquitous Tony Tebby who wrote QDos Many of these features have been borrowed from Sinclair's forthcoming *Toolkit* program, with slight alteration for better disc operation. These included error trapping when opening files, functions to read program lengths and types, and improved I/O operations There are also *Rename* and *Truncate* commands (which should be in the next QL Rom as well), and additional directory commands that give more information than the usual *Dir*

Table 2

	Microdrive	Disc
Loading 40K bytes	16	4
Saving 40K bytes	24	8 5
Saving 15K of Basic	23	10
Loading 15K of Basic	57	50

(All timings average, in similar circumstances)

When a disc file is created, it is 'date stamped', giving a very useful indicator to files It uses the QL's internal clock, an as its not battery backed-up you have to remember to set it, else you end up with a lot of files dated 1961! The command *WDir* is like the usual *Dir*, but pauses at the bottom of each screenful instead of scrolling off the top as is usual There are also functions to access the disc directly sector by sector, but these are not documented and can be hazardous to use To finish off, there are four useful functions to convert between decimal, hex and binary. All of the extra commands, as well as *Exec* and *Exec-W* default to the disc drive, obviating the need to reproduce *Flpx-* in all the filenames All the usual commands would have been altered in this way, except that there was insufficient Rom space This is another feature borrowed from the next version of QDos Hopefully the manual will be improved, as the one I had was very poor, neglecting to mention most of the functions, and inaccurately describing some

Customers will receive a demo disc containing a program to convert software from Microdrive to disc – before I knew this, I had written my own, that copied files across while converting *Mdv* sequences into *Flp* ones It works successfully on all the Psion software, and most others too

Such is the capacity of the discs that all

continued over the page

the Psion suite can be put on to half a disc, leaving room on it for data as well as the temporary files they require to run. It is possible to run them on a one-drive system by altering *Mdv2* references to *Flp1* as well.

All load the programs and work far quicker too – even *Quill*, though it's still not exactly fast. Metacomco's assembler has an *Install* option so you can define the device name to load from, and it is rumoured the Version 2s of Psion's programs have a similar option though until I see one I can't see what improvement it makes to them. It certainly makes a great difference to the Metacomco programs, which have a heavy reliance on overlays.

Psion's *Chess* program converts, except that it still looks on Microdrive 2 at the very end to make sure you have an original. In fact, it takes longer making the check than it does to completely load from disc!

The disc driver consumes only a small amount of Ram, so all software should be compatible: the only thing missing is the support of sub-directories, which is very useful on large volume media such as this.

In the short time I have had the system it gave me no reliability problems, but neither do the microdrives very often. So long as the operating system has been written well, which it seems to have been, there shouldn't be any problems with such a well tried and tested storage media. It is worth noting that when a disc is write-protected the system will tell you if you try to write to it – unlike with microdrives which just continue turning forever.



Part of the reason for the lack of QL software has been its use of microdrives, due to their cost and problems of duplication. With standard discs, both problems are removed, though if other disc systems appear they may use a different format for storing the data.

One problem does arise for users who already have a printer Interface that plugs in the expansion port – where to plug the disc drive? The answer is the Sinclair Peripheral Expansion Module, which adds multiple slots on to the bus, but until it is released the problem remains. In addition, there is a bug in all current versions of QDos that doesn't recognise more than one peripheral, connected at a time, that will also be cured by the module. A maximum of two drives can be supported on the current hardware, which should be enough, though if you wanted more I suppose you could plug in two interfaces via a module, then change the drive name of the second one by *Poking* a new one into memory, such as *Drv*. In any case, Qdos can only support a total of eight drives (including microdrives) anyway.

Q-Disk is the most important add-on so far for the QL and goes some way towards solving the QL's biggest problem – microdrives.

The 350K single drive unit at £367 is probably the best deal although the interface sold separately is a bit pricey at £149.

It works well, is easy to use, and gives a fast, high capacity media at reasonable cost, using cheap and available discs – I only wish it had come out sooner.

I can now say that I have bought my last low-capacity, fragile, expensive microdrive cartridge.

Andrew Pennell

Setting the tone

Program *CMK 49 Computer Music Keyboard* **Price** £125 **Micro** Commodore 64 **Supplier** Siel, 35A Grove Avenue, Muswell Hill, London N10

Over the past few months there's been a flood of musical software and hardware for the Commodore 64, including music keyboards from Autographics and LVL. We're also promised similar products from Sequential Circuits and possibly MusiCalc UK.

In the meantime Siel's CMK 49 is the latest offering. As the name suggests, it's a forty-nine note (four octave) full-size keyboard, which plugs into the 64's cartridge port.

Like other products it plays the 64's *Sid* chip, which is powerful enough to qualify as a small synthesiser in its own right. Unlike other products, the CMK 49 features a follow-on connector designed to enable it be connected to a *Midi* synth.

Siel's own *Midi* interface costs around £100, and the cheapest *Midi* synths are around £400 (from Siel and Casio), so this is a relatively cheap way to get into professional quality music systems.

The CMK keyboard is a sleek, well-constructed device with a pleasant feel. Although it will play a *Midi* synth in fully polyphonic mode, the 64's *Sid* chip will of course only produce three-note chords.

The tape or disc-based software allows three main options, loading preset sounds, creating new sounds and providing *Midi* keyboard split.

The sound library contains some very good voices (as well as a fair number of weedy ones) and you'll probably find it quite easy to make up better ones yourself.

Modifying sounds is very easy, through a menu page using the function and + / − keys. Most of the *Sid* chip's facilities are available, although not all – you can't specify different envelopes for the three voices or mix filter modes, for instance. These sounds can then be stored and reloaded at any time.

It's important to note that there's no 'compositional' element to the software at all – unlike many other packages, the CMK's software doesn't let you store and replay tunes. Presumably this facility will be offered on later software.

The *Midi* master keyboard option, in conjunction with the *Midi* interface, allows you to play a *Midi* synth or keyboardless expander from the CMK, or to control two *Midi* synths with a keyboard split.

The keyboard split controls couldn't be easier, just select split mode, define the *Midi* assignment channels for the two synths, and press the CMK key at the point where you wish to initiate the split, then play away on your 64 plus synth.

At around £125, the CMK 49 represents very good value for someone who intends to make it the heart of a computer/*Midi*/synth recording set-up. Bear in mind, though, that with no compositional aspect to the software, and a very minimal handbook which explains nothing about the functions and abilities of the *Sid* chip, it's probably not enough to buy the CMK on its own. Future software and hardware products from Siel and other manufacturers will almost certainly tempt you to expand the system to some extent.

Christopher Jenkins

Fuel-Dump

It's a frantic race against time in Operation Fuel-dump for the Unexpanded Vic 20 written by A Brack

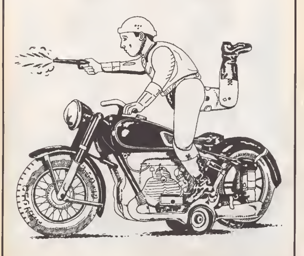
In this fantastic game for the unexpanded Vic, you must manoeuvre your motor-bike and side-car past the land mines and oil drums to reach the main fuel dump area (top right)

Once there, the detonator will begin to beep You must now return to safety (bottom left) before the fuse runs out. If you hit a mine you will be destroyed, but you can score extra points by firing at the mines or oil drums.

Each time the fuel dump is successfully destroyed, the difficulty level increases

This program uses all the Vic memory, so take care not to leave unnecessary spaces when typing in Use keys: A and Z for up and down, B and N for left and right, M to fire

Program Notes
Line No
0 - 50 Sets UDG's
60 - 100 Sets up main screen
100 - 250 main program loop
600 - 630 Blow up routine
700 - 780 Fire routine
960 - 980 End routine



```
10 REM***BY ALAN BPACK***
15 REM*****          *****
20 POKE52 28 POKE56,28
21 FORI=7424TO7431 POKEI 0 NEXTI
22 FORI=7168TO7295 READA
23 POKEI A NEXTI POKE36869 255
24 DATA255,129,129,255,129,129 255,0,60.60,0,60,60,0,60,60
25 DATA1,1,1,3,7,7,6,7,23,8 22,14,18.18 28.24
26 DATA192,128 128 128,128 96 26,204,212.211,199,233,201,14,12.0
27 DATA3,1.1 1 1,6 24,179.11,203 205 151 147.112 48 0
28 DATA128 128 128 192 192 192 224,224 232,8 96,122 72,72,56,24
29 DATA0,0.24 60 24,189 126 60.126,192 90 90.90 219 24 24
30 DATA30,220,192 123.254,192 192,192,0 0 0-0,0,4,31 14
31 DATA60.36 16 129.18,10,9 1 10 36 0 129 36.72 144 128
48 SE=3 SD=0 W=10 W1=10 LV=1
50 PRINT"J" POKE36879,27 B=0 C=30720 J=0 M=8121 M1=8143 M2=8122 M3=8144 N=0 S=36
874
51 D=2 D1=3 D2=4 D3=5 SC=99 V=36879 S1=36874 S2=36877 F=0
52 S3=36876 POKES1,0
53 FORL=1TOW O=INT(RND(1)*462) POKE7725+O 1 POKE7725+C+O, NEXT
54 FORL1=1TOW1 E=INT(RND(1)*462) POKE7725+E,13 POKE7725+C+E,0 NEXTL1
56 FORB=7680TO7723 POKEB.0 POKEB+C,4 NEXTB
57 FORB1=7724TO8142STEP22 POKEB1,0 POKEB1+C,4 NEXTB1
58 FORB2=7729TO8163STEP22 POKEB2 0 POKEB2+C 4 NEXTB2
59 FORB3=2144TO8185 POKEB3,0 POKEB3+C,4 NEXTB3
60 FORB4=8011TO8025 POKEB4,0 POKEB4+C,4 NEXTB4
61 FORB5=7662TO7876 POKEB5,0 POKEB5+C 4 NEXTB5
80 POKEM,32 POKEM1,32 POKEM2,32 POKEM3 32 POKEM-22,32 POKEM2-22 32
81 POKE7745 214 POKE7767 214 POKE7745+C 5 POKE7767+C,5
85 GOTO100
90 U1=INT(RND(1)*8)+24 POKE36879,U1
91 POKES,160 POKES2,220 FORO=5TO1STEP-1 POKEV 0 FORO1=1TO40
92 NEXTO1 NEXTO POKES2,0 POKES 0 SD=SD+100
100 X=0 H=PEEK(203) POKEV 9 POKES1,135 POKES2 H
105 IFH=36THEN700
110 IFH=35THENGOSUB300 J=J-1 D=6 D1=7 D2=8 D3=9 N=+1 Y=-1
120 IFH=26THENGOSUB300 J=J+1 D=2 D1=3 D2=4 D3=5 N=-1 Y=+1
130 IFH=17THENGOSUB300 J=J-22 D=10 D1=12 D2=10 D3=11 N=+22 Y=-22
140 IFH=32THENGOSUB300 J=J+22 D=10 D1=12 D2=10 D3=11 N=-22 Y=+22
144 IFF=1THENPRINT"SC POKEV,15 POKES3,235
145 IFPEEK(M+J)=0ORPEEK(M1+J)=0ORPEEK(M2+J)=0ORPEEK(M2+J)=0ORPEEK(M3+J)=0THENGOS
UB500
147 IFPEEK(M+J)=1ORPEEK(M1+J)=1ORPEEK(M2+J)=1ORPEEK(M3+J)=1THENGOSUB500
149 IFPEEK(M+J)=13ORPEEK(M1+J)=13ORPEEK(M2+J)=13ORPEEK(M3+J)=13THEN600
150 IFPEEK(M3+J)=214THENF=1 SC=20 POKE8120,246 POKE8142 246
155 IFPEEK(M1+J)=246THENSD=SD+100 W=W+10 W1=W1+5 LV=LV+1 GOTO50
159 POKEM+C+J,6 POKEM1+C+J,6 POKEM2+C+J 6 POKEM3+C+J,6 POKES1,144
160 POKEM+J D POKEM1+J,D1 POKEM2+J D2 POKEM3+J,D3
200 PRINT"SC SC=SC-1 IFSC<10THENPOKE7683 32
210 IFSC<0THEN900
250 PRINT"T SD SD=SD+2 PRINT"LIVES"SE GOTO100
300 POKEM+J 32 POKEM1+J 32 POKEM2+J,32 POKEM3+J,32 POKES1 144 RETURN END
500 POKES3 195 M=M+N M1=M1+N M2=M2+N M3=M3+N POKES3,0 RETURN
600 POKEM+J,14 POKEM2+J 15 POKEM+C+J 2 POKEM2+C+J,2
610 POKES2 220 FORO=12TO0STEP-1 POKEV,O FORO1=1TO120 NEXTO1 NEXTO
620 POKEV,0 POKES2,0
630 GOTO900
700 POKEM2+C+J+X,6 POKEM2+J+X,251 POKEV,15 POKES,178 POKEM2+J+X,32 POKEM2+J,D2
720 POKEM+J,D POKEM3+J,D3 X=X+Y
730 IFPEEK(M2+J+X)=0ORPEEK(M2+J+X)=214THEN100
731 IFPEEK(M2+J+X)=1ORPEEK(M2+J+X)=13THENPOKEM2+J+X,32 GOTO90
732 IFY=0THEN100
750 POKES,0 GOTO700 END
900 SE=SE-1
910 IFSE=0THEN950
920 GOTO50
950 PRINT"J" POKE36879,26 POKES,0 POKES1,0
960 PRINT"WELL DONE!" PRINT"YOU REACHED LEVEL"LV
965 PRINT"POINTS="SD
970 PRINT"TRY AGAIN...Y/N"
972 POKE198 0
974 GETA$ IFA$="Y"THENRUN
976 IFA$="N"THENEND
977 POKES3,0
980 GOTO974
```

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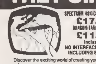
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Reviews

Steamy

Program *African Safari* **Micro** Commodore 64 **Price** £7.95 **Supplier** Interdisk, 249-251 Kensal Road, London W10 5DB

Ever felt the urge to go where no man has gone before – into the depths of darkest Africa? I can't say that I'm much of an explorer but I enjoyed trudging through the various steamy locations in this arcade/adventure gles of Africa. At times it can be slow going, however, as lions, elephants, rivers and deserts are just a few of the obstacles to impede your progress.

Dr Livingstone is a bit of a lazy character who gets a monkey to do the work for him. This gives rise to one of the game's best features – the monkey is so likeable that it almost steals the show.

The game control and screen display are quite similar to *Valhalla* – the panoramic scene is displayed in the middle of the screen and each command is accompanied by

African Safari can best be described as a computer movie because each character is fully animated. You control the famous adventurer, Dr Livingstone – a Victorian version of Indiana Jones – in his quest to find the long-lost Kenyan Diamond. By using the keyboard and joystick, it is possible to explore the jun- slick, humorous graphics. I found this game a lot more playable than *Valhalla* because it is possible to pay yourself into the game and not get chopped to death in 30 seconds.

Tom Hessey

Intricate

Program *Heathrow Air Traffic Control* **Micro** CPC464 **Price** £7.95 **Supplier** Hewson Consultants Ltd, Hewson House, 56B Milton Trading Estate, Milton Abingdon, Oxon. OX14 4RX.

I've always felt that Air Traffic Controllers come into the category of 'heavily burdened but unthanked heroes' who do all the hard work whilst the pilots have all the fun, admiration and bravado. Perhaps that's why I didn't enjoy this as much as a flight simulator – but that's not to deny the quality of the programming. Basically you are put in charge of a frighteningly crowded screenful of dots representing planes circling the airport in a holding pattern. By deciding their speed, altitude, heading, etc, the idea is to get them landed with a ridiculously short time between planes (who could live near Heathrow).

The bad news is that it is very hard to do well, especially on the higher levels with extra hazards like unidentified craft invading your airspace. The good news is that it is also quite hard to have a major disaster – although I was appalled that when two of my planes did collide the game let me carry on in charge of the rest. Also I found it hugely disappointing that the radar screen did not go blip or have a little line that goes around in a circle and I would have loved the chance to talk someone down because their pilot had fainted.

Really it's far too intricate and complex to summarise here – if the idea appeals then there's hours of fun in this program. Good for schools too I should think.

Tony Kendle

Animated

Program *Jasper!* **Price** £6.95 **Micro** Spectrum 48K **Supplier** Micromega, 230-236 Lavender Hill, London SW11 1LE

Silence falls. The Assembly of All-Star Rodents is about to discuss whether Jasper, a jungle mouse, should be allowed membership. Mr Michael Mouse (Pro) opens with a synopsis of Jasper's heroism.

'My friends, brother Jasper was a victim of the Great Wangling of the Furt. Suddenly his habitat turned hostile, and he'd lost his front door key. He had to make his way against all odds, across 22 screens, swinging from ropes, climbing creepers and leaping over lionesses.

'Contact would inevitably have proved fatal, and pangs of hunger kept him searching for food. He needed courage, quick thinking and sure-footed accuracy to run and duck on this voyage of discovery. En route he discovered many objects, but as he is a small mouse could only carry five at a time, compounding his problems. And how to use them? Would you trust an umbrella as a parachute?'

At this point S. Nutkin (Anti) interrupts.

'Just because Jasper is almost as well animated as you cartoon characters means nothing. Us story book squirrels find all these actions a bit of a paw-full. Getting, using, dropping objects . . .'

Uproar! Squeaks of 'Shame!' 'Jasper is amusing!', 'Ambitious!', 'Wonderfully detailed!' A vote ensues. Against one. For

John Minson

Positive

Program *Screen Designer* **Micro** Amstrad CPC464 **Price** £14.95 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex.

To date utility and applications packages for the 464 have been extraordinarily good, with the capabilities of the machine inspiring new heights. Amsoft's pre-publicity for the screen designer suggested that we were to expect a similar world beating package but for once I felt let down by the result. Don't get me wrong – it is a very good package, in parts brilliant, but there is still room for the definitive artist program on this machine. I would have liked to have seen commands such as 'mirror', 'rotate', the ability to 'get' and 'place' and 'copy' large areas of the screen (although this can be done with character square size blocks) or to scale up or down graphics and text. Such features have appeared on recent advanced utilities for both Spectrum and Commodore and it is uncharacteristic of Amsoft to have missed them out.

The feel of the package is, however, superb, with very positive cursor movement, and documentation is, as usual with Amstrad, comprehensive, so extremely satisfactory pictures can be produced quickly and easily. Details are also given of the 464 screen map and of how to load and save screens.

Of the facilities offered, I feel the most appreciated will be the option of stippling to increase apparent range of colours, the ability to scroll the picture by pixel or character square jumps, the *wash* command which changes one colour to another where chosen on screen, the chance to magnify areas of the screen for easier drawing and the ability to merge text with the background picture. There are, of course, the obvious things such as a very fast *circle* and *fill*. Worth the money if not as powerful as I first hoped.

Tony Kendle

Efficient

Program *The Prediction Birthday File* **Micro** Commodore 64 **Price** £12.95 **Supplies** Blandford Press, Link House, West Street, Poole, Dorset

Do you forget birthdays? If so, this filing program may solve your problems. Up to 181 dates of near ones and dear ones can be stored in any one Birthday Book.

Information can be retrieved by month, year or name, which all makes for a very neat and efficient filing system. As a bonus, you can ask the computer to print out characteristics of people born under the various zodiac signs – the so-called Sun Sign astrology.

Now, in addition to the tape comes a book *The Predictive Book of Astrology* by Peter West and Jo Logan. Both book and tape come in a glossy video-style container. Unfortunately, any connection between the book and tape is almost accidental. Despite being a well-written guide for the numerate student of astrology, the book explains how to calculate individual birth maps and has no relevance to the tape. My worry is that a less-than-aware consumer might imagine he is getting a program for constructing horoscopes – which he most certainly is not.

No doubt the suppliers have their own reasons for marketing the book and tape as a job lot, but at £12.95 it is a very expensive purchase.

By way of demonstration, the second part of the tape (*Fambook*) contains birthdays and zodiacal data for 48 famous people. This is mildly amusing and contains a few surprises. Instead of true blue, for example, Mrs Thatcher's lucky colour turns out to be pale grey.

Perhaps the best way to sum up is to suggest that the program might be all right if received as a birthday present, but be sure to think twice before parting with your own cash.

Tom Hussey

```
ENTER CHRISTIAN NAME :RONNY
ENTER SURNAME :BIGGS
ENTER DATE OF BIRTH : 12/03/51
ENTER ANY NOTES (MAX 1 LINE)
>NICE GUY LIKES WARMTH AND BANKS
```

Realistic

Price *Shoot the Rapids* **Micro** Commodore 64 **Price** £7.95 **Supplier** New Generation Software, The Brooklands, 15 Sunnybanks, Lyocombe Vale, Bath BA2 4NA.

Although the title might suggest fast-action, laser-firing exercise, this game turns out to be a realistic but tricky simulation. Placed on board a canoe, you have to guide your craft through the various slalom gates while paddling furiously down the river.

The beauty of this simulation is the realistic handling of the canoe. By moving the joystick left/right, you are able to control the paddle eg, to dip the paddle to the right, simply push the joystick right, and vice versa.

Anyone who has ever paddled a canoe will know that stroking the paddle to the right will move the boat to the left, etc.

After much piloting many different space-ships, this can become confusing until you get used to it. To paddle backwards, just press the fire button as you frantically waggle the joystick. Because the controls are so very lifelike, the canoe can be difficult to control.

Besides having to negotiate slalom gates, you have to race against the timer and complete the course within the qualifying time. Strong currents often carry you off down stream at most untimely moments, and it's hard work paddling upstream again. *Shoot the Rapids* has five levels of difficulty.

Speed-boats, inquisitive beavers and treacherous rocks are just some of the hazards to be faced on the harder stages.

The smooth scrolling graphics and precise player control needed to succeed make this game addictive and exciting to play.

Tom Hussey

Addictive

Program *1985* **Micro** Commodore 64 **Price** £1.99 **Supplier** Mastertronic, Park Lane, 111 Park Road, London NW8.

It is the day after Big Brother has been destroyed and the earth has to learn how to survive on its own. You have to find the energy your planet needs.

Placed in a small spacecraft, the countdown starts and you take off from base station. The joystick or keyboard can be used to move left, right and, for thrusting upwards. The controls are very responsive and a fair amount of practice is required if you hope to survive. To collect the nuclear pods you have to hover over them and then press the fire button.

Although the game plan might sound a bit dull it is, in fact, very addictive and playable. I admit that *1985* is not complex, but who cares when it's fun and only costs £1.99?

Tom Hussey

All action

Program *Front Line* **Micro** Commodore 64 **Price** £7.99 **Supplier** Interceptor Micros, Lindon House, The Green, Tadley, Hants.

Ready to do your duty for King and country? Well here's the chance. Sitting at the controls of the Death Tank Interceptor, you have to penetrate the enemy's defences and advance far behind their Front Line.

The mission is to recover special supply dumps on the Edward Isles. The Death Tank Interceptor is the only vehicle that stands a chance of success. The action is fast and furious right from the start. Your tank is shown in the centre of the screen and can be steered up, down, left, right and diagonally. As progress is made through dangerous territory the screen scrolls smoothly around you. Only 20 rounds of ammunition are given at the start. More can be gained at the supply dumps, along with repairs to the armour-plating. The enemy, unfortunately, has gained air superiority, so jet planes, bombers and helicopters all have to be reckoned with. On land, roaming tanks, land mines, gun emplacements and homing fireballs (?) make life difficult.

A great loading screen and music flash up as you wait for the action to start – that really gets the adrenalin going. The actual game itself is quite exciting, but I think it would be better if play started more slowly and then built up, instead of everything being flung at you straight away. Having said that *Front Line* is a good, all-action game and well worth looking at (even if it's just for the loading screen).

Tom Hussey

Suspense

Program *Alien* **Price** £9.95 **Micro** Spectrum 48K **Supplier** Argus Press Software, No 1 Golden Square, London W1R 3AB

"In space no one can hear your Spectrum," however despite the micro's notorious softness, sound contributes greatly to this novel strategy game's atmosphere. Moore hiss open, a grille is torn away and a tracking device beeps faster.

Alien proves that arcade action isn't the only way to tie-in with a film. With little more graphics than a map display you command the crew as they search their 'Nostromo' for the homicidal nasty. Will you try to force it into an airlock and eject it, or retreat to the escape shuttle and destroy the ship? Deploying forces is tricky. Frightened crew members may disobey, and one of them is really an android, programmed to obstruct you.

You send Lambert into the laboratory, ominous signs of damage are reported. Do you order her into the air duct or ...? Suddenly your screen fills with the alien twitching its tail. Lambert is no more.

Sadly the program has to be marked down for over sensitive key responses, which can result in an aborted game when you only intended to pause. Otherwise *Alien* proves that strategy need not be synonymous with slow and cerebral can equal suspense. There's always lots to do and plenty of options so despite its initial complexities and response problem, it's worth investigating, particularly if you usually enjoy this kind of strategy program.

John Minson

Downhill

Program *The Great Space Race* **Micro** Spectrum 48K **Price** £14.95 **Supplier** Legend Software, PO Box 435, Station Rd, London E4 7LX

The anticipation of an experience, I am reliably informed is very often more pleasurable than the experience itself. This is certainly true in the case of *The Great Space Race*.

I opened the box, surveyed the booklet, read the cartoons. It looked good. It is my duty as a reviewer to tell you it was downhill from then on.

Legend to be fair, have certainly tried something different. The program continues Legend's software 'movie' idea and game ... more a series of events that you can occasionally alter. The whole thing is divided up into two stages. In the pre-race phase, you are given the opportunity to hire up to four 'personalities' (who vaguely work for you) and equip their ships.

At the beginning of the race, they all start off from the central hub of the Galaxy and each travels along one of the four spiral arms, supposedly to deliver cases of a mega-brew, called Natof to each Space Station along that arm I said apparently, because the chances are several of them will just hang around at Natof.

On the way, they may attack or be attacked by other competitors (or the Galactic Bill) break down, get drunk, come across alien wrecks ... it certainly is a jolly life out on the Galactic Rim. Unfortunately you'll find that anything is better than sitting at home in front of your keyboard watching all this go on ... for that is largely what happens.

Graphically the game goes from quite interesting to appalling – particularly the battle sequences which were obviously a last minute job. It's almost as though the game was begun by good programmers and finished by dreadful ones. There was once the kernel of a good idea here, but it has been hopelessly lost in a welter of bad programming (they didn't even bother to disable the *Break* key) and hype.

I would expect a lot from a piece of cassette tape that cost me 15 quid ... and the *Great Space Race* just doesn't deliver.

John Cook



The greatest animated graphic adventure yet, with over 7? screens to discover and conquer.
For the BBC and ELECTRON

Play with Fire!
The best arcade ... ever written for the BBC.



C.S.M.

Routine investigation

A pot-pourri of machine-code routines for text animation written by ***G Hitchen***

These machine code routines (Listing 2) were written in order to produce more interesting program titles and description pages on the ZX Spectrum. Using the routines it is possible to scroll text across the screen, rotate characters, flash text without changing the paper colour and selectively clear parts of the display. All except routine No 8 can be placed anywhere in user Ram.

1) Scroll L-R

This routine will scroll any part of any row one pixel to the right with wrap around. *Poke* the fourth location with the number of the row to be scrolled, the second location with the number of the first column in the row to be scrolled and the sixth location with the total number of columns to be scrolled.

2) Scroll R-L

This routine is the same as above except that it scrolls from right to left.

3) Rotate CHR.$

Calling this routine will rotate all the characters in a chosen row by one pixel. This is easier to see if a space is left between each character. *Poke* the second location with the number of the row to be rotated.

4) CLR T-B

This routine clears the display from the top to the bottom, between any two *y* co-ordinates and at a controlled speed. *Poke* the second location with the highest *y* co-ordinate to be cleared, the 30th location with the lowest *y* co-ordinate to be cleared. The 19th and 20th locations hold the two-byte number which controls the speed of execution of the routine, increasing the number decreases the speed. It is in the usual low byte-high byte form (see page 173 of the user manual) and hence the 20th location has the most effect.

5) CLR L-R

This routine clears the screen from left to right, between any two *y* co-ordinates and any two *x* co-ordinates. *Poke* the second and 38th locations with the highest *y* co-ordinate to be cleared, the fifth location the lowest *x* co-ordinate to be cleared, the 28th location with the lowest *y* co-ordinate and the 43rd location with the highest *x* co-ordinate. Locations 30 and 31 control the speed.

6) Border CLR

This routine changes the border colour every time it is called.

7) Ink-paper

The first time this routine is called it changes the *ink* colour of selected rows to the *paper* colour. The next time it is called it changes the *ink* colour back to what it originally was. By repeatedly calling the routine text will flash on and off without changing the *Paper* colour (unlike the Spectrum *Flash* command). *Poke* the twelfth location with the first row to be flashed, the second location with the total number of rows to be flashed.

This routine uses addresses 64295 to 64999 as a temporary store, therefore you must *Clear* to at least 64294 and not use the addresses of anything else. The start address of the temporary store is held in locations 40-41 and 49-50. Owners of 16K machines should *Poke* these locations with 161 and 124 respectively. This will put the store at address 31905. They should also *Clear* to at least 31904.

8) 48K VAR SCR

This routine will only run on the 48K Spectrum and must be *Poked* into addresses 65000 to 65147. It will scroll the contents of a string variable from right to left along any section of any row. The string variable must have a single letter name and it must be the first variable to be defined. The string can be up to 65535 characters long, which should be more than sufficient for most uses! The string will always scroll completely off the screen. You can change what is printed after it by *Poke 65027, code "Q"* when *Q* is the character you wish to be left behind. The following *Pokes* control where the string is scrolled.

Poke 65135, number of row, *Poke 65136*, number of first column in row to be used, *Poke 65137*, total number of columns to be scrolled.

Addresses 65138 and 65139 control the speed of the routine as for routine No 4.

A program to demonstrate these routines can be seen in Listing 1. Listing 2 should be entered directly after Listing 1.

Owners of 16K machines should ignore Lines 20, 37-39, 930, 940, 3070-3110, and subtract 32768 from all addresses. The easiest way to do this would be to enter a line *20 Let k= 32768*, and type "-k" after every address as they are entered.

Although written to move text, the routines could find applications in games where continuous movement along a line is needed.

```
 10 REM *************************
 11 REM *Demonstration Program*
 12 REM *************************
 13 REM
 20 LET a$="This is a demonstra
tion of the '48K VAR SCR' routin
e. The message to be used must b
e in a string variable with a si
ngle letter name and must be the
 first variable to be defined."
 25 LET A=0
 30 PRINT #1,TAB 3,"Please wai
t - POKEing DATA": GO SUB 930
 35 INK 7: PAPER 0: BORDER 0: C
LS
 37 POKE 65025,42: POKE 65135,0
: POKE 65136,0: POKE 65137,32: R
ANDOMIZE USR 65000
 38 PAUSE 20
 39 POKE 65135,2: RANDOMIZE USR
 65000
 40 GO SUB 500
 42 PRINT AT 21,0,"Any key for
demo. of INK-PAPER": PAUSE 3000
: POKE 65333,0: POKE 65338,0: PO
KE 65357,0: POKE 65362,6: POKE 6
5369,6: POKE 65374,255: RANDOMIZ
E USR 65332
 43 PAUSE 40: POKE 65394,22: PO
KE 65403,0
 44 FOR f=1 TO 10: RANDOMIZE US
R 65393: PAUSE 30: NEXT f
 45 PRINT AT 21,7,"Any key to C
LR L-R": PAUSE 3000
 46 POKE 65333,175: POKE 65338,
0: POKE 65357,0: POKE 65369,175
: POKE 65352,6: POKE 65374,255: R
ANDOMIZE USR 65332
 47 PAUSE 30: GO SUB 500: PRINT
 AT 21,7,"Any key to animate": P
AUSE 3000
 48 POKE 65333,8: POKE 65389,0
: POKE 65357,0: RANDOMIZE USR 653
32: PAUSE 10
 49 POKE 23560,255
 50 GO SUB 599
 60 POKE 65300,175: POKE 65328,
0: RANDOMIZE USR 65299
 70 PRINT #1,TAB 6,"End of demo
nstration": PAUSE 1: PAUSE 0
 80 STOP
470 REM *************************
480 REM ***** PRINT titles ****
490 REM *************************
495 REM
500 PRINT AT 0,0,"**************
*********************""" Z  X  S
  P  E  C  T  R  U  M """"*******
*****************************"
510 PRINT AT 7,3,"TITLE AND DIS
PLAY ANIMATION",AT 10,15,"BY",AT
 15,11,"G. Hitchen"
520 RETURN
540 REM
550 REM *************************
560 REM *** Call animation ****
570 REM *************************
580 REM
599 PRINT AT 21,0,"Any key for
demo. of CLR T-B"
600 IF PEEK 23560<>255 THEN RET
URN
605 POKE 65270,1: RANDOMIZE USR
 65277
610 POKE 65201,10: POKE 65203,1
1: POKE 65205,10: RANDOMIZE USR
 65200
620 POKE 65236,7: POKE 65240,2
: POKE 65242,30: RANDOMIZE USR 65
237
622 LET A=A+1: IF A<15 THEN GO
TO 500
624 LET A=0
630 POKE 65394,1: POKE 65403,10
```

```
 RANDOMIZE USR 55393
840 GO TO 800
850 STOP
899 REM
900 REM ************************
910 REM ***** POKE M/code *****
920 REM ************************
921 REM
925 CLEAR 64296
930 RESTORE 3100
940 FOR F=55000 TO 65147  READ
B  POKE F,B  NEXT F
950 RESTORE 1020
960 FOR F=65200 TO 65472  READ
B  POKE F,B  NEXT F
970 RETURN
990 REM
1000 REM ***** SCROLL L-R *****
1005 REM ****** 37 BYTES ******
1010 REM
1020 DATA 62,0,30,0,14,32,205,15
3,14,22,0,25,0,0,197,229,89,29,2
2,0,25,126,18,85,225,229,203,30,
35,16,251,225,35,193,16,234,201
1030 REM
1040 REM ***** SCROLL R-L *****
1045 REM ****** 40 BYTES ******
1050 REM
1060 DATA 62,0,30,0,14,32,205,15
3,14,22,0,25,229,209,6,0,13,9,12
,6,0,197,213,229,35,7,85,203,22,
43,16,251,225,209,193,20,35,16,2
30,201
1070 REM
1080 REM ***** ROATE CHR.S *****
1085 REM ****** 22 BYTES ******
1090 REM
2000 DATA 62,0,205,156,14,6,8,19
7,229,8,32,203,14,36,16,251,225,
35,193,16,242,201
2010 REM
2020 REM ****** CLR T-B ******
2025 REM ****** 33 BYTES ******
2030 REM
2040 DATA 6,175,14,0,4,197,6,205
,170,34,8,35,64,0,35,16,251,1,23
2,5,11,120,177,32,251,193,6,120,
254,0,32,229,201
2050 REM
2060 REM ****** CLR L-R ******
2065 REM ****** 46 BYTES ******
2070 REM
2080 DATA 0,175,4,14,0,197,5,200
,170,34,71,4,62,204,15,16,253,71
,125,100,119,195,6,120,254,0,32,
233,17,1,0,27,122,179,32,251,5,1
75,12,121,61,254,255,32,216,201
2090 REM
3000 REM ***** BORDER CLR *****
3005 REM ****** 18 BYTES ******
3010 REM
3020 DATA 58,129,92,254,6,56,1,1
75,211,254,66,50,126,92,201
3030 REM
3040 REM ****** INK-PAPER ******
3045 REM ****** 80 BYTES ******
3050 REM
3060 DATA 33,88,0,41,41,41,41,41
,229,33,0,0,41,41,41,41,41,17,0,
58,26,229,126,230,7,71,125,230,5
6,203,47,203,47,203,47,184,32,6,
33,39,251,208,193,237,176,201,22
5,17,59,251,163,229,197,237,176,
209,225,213,126,230,248,71,230,5
6,203,47,203,47,203,47,128,119,3
5,209,27,122,179,32,234,201
3070 REM
3080 REM ***** 48K VAR SCR *****
3085 REM *** 55000 TO 65147 ***
3090 REM
3100 DATA 42,75,92,35,76,35,70,3
5,126,229,197,205,11,254,193,225
,11,120,177,32,246,58,115,254,71
,62,32,197,205,11,254,193,16,247
,201,111,36,0,6,3,203,37,203,20,
16,250,17,0,88,25,17,116,254,6,5
,160,16,36,19,16,250,6,8,197,205
,47,254,193,16,249,201
3110 DATA 221,33,111,254,221,126
,0,221,94,1,221,78,2,205,150,14,
22,0,25,229,209,6,0,13,9,12,221,
33,115,254,6,8,197,213,229,221,2
03,0,8,221,35,65,203,22,43,16,25
1,225,209,193,20,35,15,234,237,7
5,114,254,11,120,177,32,251,201,
0,0,32,232,3,0,2,0,0,0,6,9,6
```



Easy reading

*Compact Directories on your QL from the keyboard of **B J White***

Users soon find the single column *DIRectory* makes items disappear off the top of the screen. Readers may be interested in the method particularly for initial help with channels. This procedure is best placed in a program called *boot* along with other Procedures starting at say 30000. The *boot* is loaded by F1 or F2 and the Procedures may be treated as extra resident commands. For this program *Ind 1* for *Dir mdv1*, *Ind 2* for *Dir mdv2*

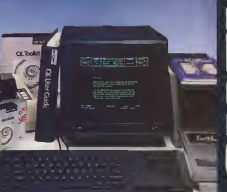
Program Notes
Line No

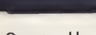
170 *Remarks* may be placed before the *Local* items
180 Prevents these items being known outside the *Procedure*.
190 index$ is shorter and used as is to print the mdv detail before items
200 *Deletes* the previous index$ on cassette but does not stop if no index$ it does stop the program if there is no cassette in the asked mdv and gives error report 'not found" which is done before any channels get opened so that they are not left open when things stop
210 *CLS* does not clear the whole of #1 and #2 on my machine.
220 Closes the normal channel through which *Directory* comes to screen
230 *Open-New #1* now makes anything coming in on #1 go to the appropriate mdv as index$. *New* seems to mean "out" of computer
240 The *Directory* has nowhere to go except to cassette
250 The first part is finished with a readable copy of *Directory* on its own cassette. Close the channel.
260 An arbitrary channel 10 is chosen to receive the file back from cassette
270 Another, #11 will do in place of 1 and 2 and allow change of colours without altering the ordinary display
280 *Prints* the drive detail and letters index on screen
290 Sets variable to zero.
300 Starts the loop which collects the characters one by one from the cassette file
310 The *Inkey$* is set to read from #10 which we opened in line 260 from the mdv. The −1 makes it wait forever until it sees the next character
320 The asc number, or *Code* is taken of the character so that the *Select* can work. It only works with numbers
230 The normal letters range of asc
380 Sinclair has used *chr$(10)* to force a new line between items. We use it to print the items in rows with suitable separation. A comma at the end of *Print* would give two columns. The item name having been printed we start a new name$
350 The end of file on #10. If no EOF program will stop leaving channels open and report "end of file". Channels left open can prove awkward
360 Round again if no exit.
390 *Close* channels
410 Get normal channels back in use. We effectively closed #2 in line 270
420 Easy, note the procedure tolerates numbers for the mdvs though strings are in the program. Coercion can help. Add a Print to Printer channel after screen print

```
100 REMark COMPACT "QL" DIRECTORY
110 REMark ******************
120 REMark COPYRIGHT B.J.WHITE 1984; 6, Hawks Way, Heswall, M'side L60 8IN
130 REMark ************************
140 REMark e.g. ENTER IND 1 or IND 2 for compact DIR mdv1_ or DIR mdv2_
150 REMark ***************************
160 DEFine PROCedure ind(drive$)
170 REMark --------------------------
180 LOCal asc,char$,index$,name$
190 index$="INDEX : "
200 DELETE "mdv"&drive$&"_"&index$
210 CLS
220 CLOSE #1
230 OPEN_NEW #1,"mdv"&drive$&"_"&index$
240 DIR "mdv"&drive$&"_"
250 CLOSE #1
260 OPEN #10,"mdv"&drive$&"_index : "
270 OPEN #11,con_
280 INK #11,2 : PAPER #11,7: CLS #11 :  PRINT #11, mdv"&drive$&"_index :
290  name$ = ""
300 REPeat text_loop
310   char$ = INKEY$(#10,-1)
320   asc = CODE(char$)
330   SELect ON asc = 33 TO 122 : name$ = name$&char$
340    SELect ON asc  = 10 : PRINT #11, 'name$' ; "; : name$=""
350   IF EOF(#10)  THEN EXIT text_loop
360 END REPeat text_loop
370 CLOSE #11
380 CLOSE #10
390 OPEN #1,con_: OPEN #2,con_
400 END DEFine ind
```

QL NEWS

News from the world of Sinclair QL computing





One year old... and look how we've grown!

When we launched the QL last year, we knew we were starting a revolution.

For the first time, the serious computer hobbyist could afford the same power and performance as the professional computer user

A year later, and the QL is more than a unique computer, it's the heart of a unique system

And the next 12 months promise even more for QL owners.. new software options, extra storage devices, printers, monitors.

Read on, and see how far we've come, and how much further we're going!

NIGEL SEARLE

Now it's the quantum leap for QL software and peripherals

Without doubt, the QL was the computer innovation of 1984 Launched to outstanding reviews it soon gathered thousands of happy owners, and recognition from people like ICL, who have incorporated QL technology and its Microdrives into the new One Per Desk.

The quickest glance at the QLs specification shows what the fuss was all about ... 128K RAM, 32-bit processor architecture, 200K built-in mass storage bundled software They're features that would normally cost you three or four times as much!

But that's only half the story because the QL is now the heart of a computer system with a growing library of software...

As you'll see from these pages, 1985 is the year of the quantum leap for software and peripherals Already there are no less than five QL languages together with special programs for software developers a world-beating chess game and much more on the way!

On the hardware side, there's a special QL monitor to make the most of that high-resolution 512 x 256 pixel display There are memory expansion boards, Winchester disk drives, printers and low-cost Microdrive cartridges.

In fact, there's so much going on, we'll be running these regular Newsletters just to keep you in touch!

If you already own a QL, the next few pages will give you a taste of the exciting year ahead

And if you don't ... take a look at what you're missing It should be all the persuasion you need!

Now read on ... the quantum leap into serious computing starts here.

Nigel Searle

Nigel Searle, Managing Director, Sinclair Research Limited



New QL Software

Utilities, languages, games and business packages...with more on the way!

Two things are now certain about QL software First, there's going to be plenty of it. And second it's going to set completely new standards for microcomputers

At the moment, there are well over 100 software programs in development. And the first software releases, shown here demonstrate how exceptional the best QL software will be

The QL already has five languages superb programs for software developers, a top quality accounting package and in QL Chess it has its first game.

QLUB: 10,000 members and growing!

QLUB is the special Users Bureau for Sinclair QL owners. There are now well over 10,000 QLUB members.. and membership is growing all the time

For their annual subscription of £35, QLUB members are enjoying a whole range of information and advisory services, exclusive offers and special discounts.

One of the most important QLUB benefits is the special news magazine, appearing six times a year The magazine provides a forum for QL owners to exchange views and keep in touch with all the latest developments.

Each issue is packed with updates on QL hardware and software, tips on applying the four QL Programs, and news of how other people are using the QL. QLUB members also receive a range of special discounts with savings of at least 20% on selected software products





The multilingual Sinclair QL

BCPL – a forerunner of C, BCPL has been described as a systems programmer's delight. In the words of QL User, this compiler is a brilliant compromise between a high-level language and a low level systems language. Whilst not for beginners this is an essential buy for anyone with a good knowledge of systems programming. Complete with manual.
Available from
Metacomco – £59.95
Tel: 0272 428781

LISP – already well-known for its artificial intelligence applications, LISP is a powerful and versatile language. This is a sophisticated implementation of LISP, by one of its leading exponents, Dr Arthur Norman. This package features full QL graphics, and a full manual is supplied.
Available from
Metacomco – £59.95
Tel 0272 428781

Pascal – probably the most popular high level language of all. Pascal is particularly well suited to structured programming, sophisticated data manipulation and algorithmic problems. Pascal interpreter complete with 87 page manual.
Available from
Computer One – £39.95
Tel 0223 862616

Forth – this new generation language is proving both popular and easy to learn. The program provides a full implementation of the latest Forth 83 standard with graphics and sound extension.
Available from
Computer One – £29.95
Tel 0223 862616

APL – the compact mathematics-based interpreted language designed for scientists and mathematicians.

APL keyword interpreter complete with manual.
Available from
MicroAPL – £99.95
Tel 01-622 0395

Programmer's packs

QL Assembler – two programs operating in tandem. The first is a full screen editor for creating and altering program files. The second a Motorola format compatible 68000 assembler which converts source files written in M68000 assembly language into machine code files which can run on the QL.

Both assembler and editor are written in machine code and can be multi-tasked with SuperBASIC, so you can switch between editor, assembler and SuperBASIC instantly.
Written by GST Computer Systems – £39.95 *

QL Toolkit – a programmer's toolkit with over 70 programs and extensions to SuperBASIC. Most are linked to SuperBASIC initially and can then be used from commands or from within a program. Enhancements include printer spooling (print a file while running a SuperBASIC program), improved file access (with full random input/output command), job control (allows management of multi-tasking programs including the ability to display after priorities, and delete jobs from the QL), and SuperBASIC screen editor.
Written by Q Jump – £24.95 *

World-beating chess!

QL Chess – fresh from its victory at the World Microcomputer Chess Championship. This program sets a completely new standard for games software.

There's a high resolution display, animated 3-D graphics and 28 levels of play from novice to champion. Features include an openings book of nearly 4000 moves, HINT and TAKEBACK functions that help you learn from your mistakes and the option to play a human opponent or the computer.
Written by Psion – £19.95 *

Software at work

QL Touch 'n' Go – a unique approach to learning touch-typing skills. The program is designed to give you mastery of the standard QWERTY keyboard in just 24 hours. With practice you should soon reach 40 words per minute with over 95% accuracy.
Written by Harcourt – £24.95 *

QL Cash Trader – a unique computerised book keeping system for small businesses. The program provides a complete course in the principles of accountancy and goes on to become an essential aid in the day-to-day running of a business. Complete with comprehensive manual.
Written by Accountancy Software of Torquay – £69.95 *

*This title is available from Sinclair Research on 0276 686100 and selected Sinclair stockists nationwide.

Psion trouble-shooting service

All QLUB members can obtain special assistance from Psion on using the QL Quill, Abacus, Archive and Easel programs supplied with the computer. Psion will normally answer any queries within 48 hours.

Free updates

QLUB members will also receive one free update of each of the four QL Programs – incorporating many new developments.

New QL Hardware

An industry is born

From the moment of its launch, the revolutionary QL attracted massive interest from all quarters.

In one area, the interest quickly turned to action, as high-tech hardware manufacturers realised the immense potential of the QL for vast expansion, for system development and for widespread networking. Already the list of peripherals for the QL is very exciting – and lengthening by the day!

Here, we've covered many of the latest, most important developments.

As more appear, be sure to keep in touch with QL News!

The dedicated Sinclair Vision QL monitor

Once you see the incredible graphics capabilities of the QL you may decide an ordinary TV just can't do them justice.

If that's the case, a high-resolution monitor is needed. (And if you're creating presentation-quality charts, for example it's quite essential.)

The new Vision QL monitor is specially designed for the computer by Kaga Electronics, with full support from Sinclair Research.

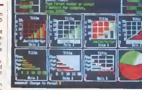
So it exploits the QL's maximum 512 x 256 pixel resolution to the full with a pin-sharp 85 column display.

It's also specially styled to suit the QL – in looks, and in use. There's a 12" non-glare tube and etched screen to diffuse reflections.

So the display is bright, sharp, *much* easier to look at and invaluable for those late-night programming sessions!

And like the QL, the Vision monitor is designed with space in mind: it has a compact foot print of just 12½" by 15" – no more than a typical portable typewriter.

It's available from MBS Data Efficiency on 0442 60155 and selected Sinclair stockists.



The QL's superb graphics capabilities – as demonstrated by the Sinclair Vision QL monitor

Blast overpressures

Blast overpressures caused by a nuclear explosion explained by ***Peter J Bilbrough** (Member Institute of Civil Defence)*

The nuclear arms race is probably the most serious issue of modern society.

The following article and program is not a computer game. It is a serious attempt to illustrate the devastating destruction which would result from any nuclear conflict.

Recently the debate about nuclear arms has subtly changed. Controversial terms like "limited nuclear exchange" and "acceptable losses" are now quite often used – nuclear arms as an 'offensive weapon' rather than as a deterrent.

Yet few people have any real idea of the scale of the effects of a nuclear explosion.

Even disregarding any radiation effects, one of the main immediate consequences of any nuclear explosion is to generate a blast wave. This shock wave moves away from the point of the explosion with ever decreasing force. The amount by which this pressure wave exceeds the normal atmospheric pressure is known as the 'overpressure'. The range and effects of the overpressure vary according to the size of the explosion and its height above the earth's surface. For example, an explosion of one megatonne with a burst height of 2.28km will extend the ten pounds per square inch (psi) overpressure contour to a radius of 4.45 kilometres from ground zero – covering, for example, an area the size of Cardiff or Coventry.

For those unfamiliar with the scale of the effects resulting from blast overpressures, as an approximate guide an overpressure of 10 psi will demolish most buildings and cause more than 95% fatalities. Between 5-10 psi houses will be destroyed or seriously damaged and around 50% of the population will be killed. From 1 to 5 psi there will be an increasing amount of superficial damage with the death rate running at about 5%.

The British Government's figures for blast overpressures and anticipated death rates have been severely criticised by both pro and anti-unilateralists. Unfortunately for these critics, in some cases their own estimates of blast overpressure ranges are also substantially inaccurate.

The most reliable work generally available is *The Effects of Nuclear Weapons* by Glasstone and Dolan. Much of the book is taken up with detailed mathematical studies and models. In order to "make effects data easily available", the results of all this research has been condensed on to a weapon effects calculator, which is supplied with the book.

The calculator is only intended as a general guide and is not complex enough to take account of all factors. The net effect of misusing the calculator is to suggest that the ranges for each overpressure are greater than they would be in practice. This program corrects any errors there may be.

For a selection of eight values from 20 psi down to one psi it gives the burst height needed to provide the optimum range for each overpressure in turn and the distance for all other pressures at that same height.

Program Notes

Typing in the program need not be as daunting as may first appear. The subroutine at 3000 can be left out if desired without any ill effects to the rest of the program. The numbers 1000 to 1098 can be overtyped for the other sequences and the defined figures in brackets simply changed to those indicated in the program.

Some confusion may be found in selecting the correct symbols for forming the results boxes. These are as follows: horizontal lines – Commodore key plus 'Y' and 'P'; vertical lines on either side of box – Commodore key plus 'G' and 'M', vertical internal lines – Shift plus 'B'. The only Commodore symbols used within quotes are the cursor up, cursor down and ctrl/reverse on ones.

```
5 REM ***BLAST OVERPRESSURE RANGE***
10 PRINTCHR$(147)
12 POKE53280,6:POKE53281,6
15 GOSUB3000
17 REM **INPUT YIELD**
20 PRINT"GIVE YIELD IN MT OR DECIMAL PARTS
30 PRINT"BY NUMBER ONLY (E.G. .2 OR 5).
40 INPUTY
45 T=Y*1000
50 A=EXP(LOG(T)/3)
130 REM **CHOICE OF RANGE SCALE**
140 PRINT:PRINT:PRINT"HOW DO YOU WANT THE RESULTS DISPLAYED?
150 PRINT"(A) IN KILOMETRES
160 PRINT"(B) IN MILES:PRINT
170 PRINT"          CHOOSE 'A' OR 'B' "
180 GETX$:IFX$=""THEN180
185 IFX$="A"THENDEFFNX(Q)=INT(((Q*A)/1000)/.01+.5)*.01:GOTO197
190 IFX$<>"B"THEN180
195 DEFFNX(Q)=INT((((Q*.621371)*A)/1000)/.01+.5)*.01
197 K=ASC(X$)
198 IFK=65THENK$="KMS"
199 IFK=66THENK$="MLS"
200 REM **SELECTION OF OVERPRESSURE**
205 PRINT:PRINT:PRINT"FOR WHICH OVERPRESSURE DO YOU WANT THE
210 PRINT"OPTIMUM DISTANCE?"
220 PRINT"(A) WITHIN THE RANGE 20 TO 8 PSI
230 PRINT"(B) WITHIN THE RANGE  6 TO 1 PSI":PRINT
240 PRINT"          CHOOSE 'A' OR 'B'
250 GETX$:IFX$=""THEN250
260 IFX$="A"THEN2000
270 IFX$<>"B"THEN250
1000 REM *LOW PRESSURE RANGE-LOW SCALE*
1001 PRINTCHR$(147):PRINT
1004 PRINT"            RESULTS FOR Y"MT
1005 PRINT" ________________________________
1010 PRINT"|HT OF  |  RANGE  IN  K$ ) FOR CHOSEN  |
1020 PRINT"|BURST  |     OVERPRESSURES (IN PSI)   |
1025 PRINT"|IN  K$"|   6   |   4   |   2   |   1  |"
1030 PRINT"|-------|-------|-------|-------|------|
1040 FORX=1TO12
1050 PRINT"|"TAB(8)"|"TAB(16)"|"TAB(24)"|"TAB(31)"|"TAB(38)"|"
```

```
1050 NEXT
1054 PRINT"
1056 PRINT"TTTTTTTTTTT"TAB(2)"GROUND"
1060 PRINT"7"TAB(9)FNX(396)TAB(17)FNX(503)TAB(25)FNX(  )TAB(32)FNX(1173.5)
1061 PRINT
1065 PRINTTAB(2)FNX(305)TAB(9)FNX(612.5)
1070 PRINT"7"TAB(17)FNX(792.5)TAB(25)FNX(1250)TAB(32)FNX(18 5.5)
1071 PRINT"|          |          |
1075 PRINTTAB(2)FNX(335)TAB(9)FNX(396)
1080 PRINT"7"TAB(17)FNX(806)TAB(25)FNX(1274)TAB(32)FNX(2027)
1081 PRINT"|     |     |     |
1085 PRINTTAB(2)FNX(343)TAB(9)FNX(366)
1090 PRINT"7"TAB(17)FNX(792.5)TAB(25)FNX(1250)TAB(32)FNX(204 )
1091 PRINT"|     |     |     |
1093 PRINTTAB(2)FNX(468)TAB(9)
1095 PRINT"7"TAB(17)FNX(581)TAB(25)FNX(909)TAB(32)FNX(214)
1096 PRINT"|     |     |     |     |
1097 PRINT:PRINT
1098 PRINT"
1100 PRINT"          |PRESS ANY KEY TO CONTINUE|
1105 PRINT"
1110 GETA$:IFA$=""THEN1110
1200 REM *LOW PRESSURE RANGE-HIGH SCALE*
1210 PRINTCHR$(147):PRINT:PRINT
1215 PRINT"             RESULTS FOR Y MT"
1220 PRINT"
1230 PRINT"|OPTIMUM|  RANGE (IN "K$") FOR CHOSEN  |
1240 PRINT"|PRESURE|    OVERPRESSURES  IN PSI    |
1250 PRINT"|IN PSI |  20  |  15  |  10  |  5  |
1260 PRINT"|
1270 FORX=1TO12
1280 PRINT"|"TAB(8)"|"TAB(16)"|"TAB(24)"|"TAB(31)"|"TAB(38)"|
1290 NEXT
1300 PRINT"
1310 PRINT"TTTTTTTTTTT"TAB(2)"GROUND
1315 PRINT"7"TAB(9)FNX(216.5)TAB(17)FNX(250)TAB(25)FNX(314)TAB(32)FNX(350.5)
1317 PRINT
1320 PRINTTAB(2)"6"TAB(9)"   -"
1330 PRINT"7"TAB(17)FNX(122)TAB(25)FNX(259)TAB(32)FNX(50 )
1340 PRINT
1350 PRINTTAB(2)"4"TAB(9)"   -"
1360 PRINT"7"TAB(17)"   -"TAB(25)FNX(152.5)TAB(32)FNX(259)
1370 PRINT
1380 PRINTTAB(2)"2"TAB(9)"   -"
1390 PRINT"7"TAB(17)"   -"TAB(25)FNX(  )TAB(32)FNX(244)
1400 PRINT
1410 PRINTTAB(2)"1"TAB(9)"   -"
1420 PRINT"7"TAB(17)"   -"TAB(25)"   -"TAB(32)"   -"
1430 PRINT
1900 PRINT"ANY MORE (Y/N)"
1910 GETA$:IFA$=""THEN1910
1920 IFA$="Y"THENPRINTCHR$(147):GOTO20
1930 IFA$<>"N"THEN1910
1940 END
2000 REM HIGH PRESSURE RANGE HIGH SCALE
2010 PRINTCHR$(147):PRINT
2015 PRINT"              RESULTS FOR Y MT"
2020 PRINT"
2030 PRINT"|HT OF  |  RANGE  IN  K$ ) FOR CHOSEN  |
2035 PRINT"|BURST  |   OVERPRESSURES (IN PSI)    |
2040 PRINT"|IN  K$ |  20  |  15  |  10  |  5  |
2050 PRINT"|
2060 FORX=1TO12
2070 PRINT"|"TAB(8)"|"TAB(16)"|"TAB(24)"|"TAB(31)"|"TAB(38)"|
2080 NEXT
2090 PRINT"
2100 PRINT"TTTTTTTTTTT"TAB(2)"GROUND
2110 PRINT"7"TAB(9)FNX(216.5)TAB(17)FNX(250)TAB(25)FNX(314)TAB(32)FNX(350.5)
2120 PRINT
2140 PRINTTAB(2)FNX(156)TAB(9)FNX(280)
2200 PRINT"7"TAB(17)FNX(360)TAB(25)FNX(430)TAB(32)FNX(457)
2210 PRINT"|     |     |"
2220 PRINTTAB(2)FNX(198)TAB(9)FNX(277)
2230 PRINT"7"TAB(17)FNX(366)TAB(25)FNX(436)TAB(32)FNX(426)
2240 PRINT"|     |     |     |"
2250 PRINTTAB(2)FNX(226.5)TAB(9)FNX(164.5)
2260 PRINT"7"TAB(17)FNX(350.5)TAB(25)FNX(445)TAB(32)FNX(505)
2261 PRINT"|     |     |     |     |
2262 PRINTTAB(2)FNX(274)TAB(9)"   -"
2264 PRINT"7"TAB(17)FNX(152.5)TAB(25)FNX(305)TAB(32)FNX(515)
2270 PRINT"|     |     |     |     |"
2274 PRINT:PRINT
2275 PRINT"
2280 PRINT"          |PRESS ANY KEY TO CONTINUE|
2285 PRINT
2290 GETA$:IFA$=""THEN2290
2300 REM HIGH PRESSURE RANGE-LOW SCALE
2310 PRINTCHR$(147):PRINT:PRINT
2320 PRINT"             RESULTS FOR Y MT
2330 PRINT"
2340 PRINT"|OPTIMUM|  RANGE (IN "K$") FOR CHOSEN  |
2350 PRINT"|PRESURE|    OVERPRESSURES (IN PSI)   |
2360 PRINT"|IN PSI |  6  |  4  |  2  |  1  |"
2370 PRINT"|
2380 FORX=1TO12
2390 PRINT"|"TAB(8)"|"TAB(16)"|"TAB(24)"|"TAB(31)"|"TAB(38)"|"
2400 NEXT
2410 PRINT"
2420 PRINT"TTTTTTTTTTT"TAB(2)"GROUND"
2430 PRINT"7"TAB(9)FNX(396)TAB(17)FNX(503)TAB(25)FNX(777)TAB(32)FNX(1173.5)
2440 PRINT
2450 PRINTTAB(2)"20"TAB(9)FNX(564)
2460 PRINT"7"TAB(17)FNX(716)TAB(25)FNX(1129)TAB(32)FNX(1707)
2470 PRINT
2480 PRINTTAB(2)"15"TAB(9)FNX(579)
2490 PRINT"7"TAB(17)FNX(731.5)TAB(25)FNX(1153)TAB(32)FNX(1,52.5)
2500 PRINT
2510 PRINTTAB(2)"10"TAB(9)FNX(594)
2520 PRINT"7"TAB(17)FNX(74 )TAB(25)FNX(1169)TAB(32)FNX(1929)
2530 PRINT
2540 PRINTTAB(2)"5"TAB(9)FNX(608.5)
2550 PRINT"7"TAB(17)FNX(777)TAB(25)FNX(1234.5)TAB(32)FNX(1985)
2560 PRINT
2570 GOTO1400
3000 REM **INTRODUCTION**
3005 PRINT"NUCLEAR WEAPON BLAST OVERPRESSURE RANGES
3010 PRINT"                INTRODUCTION
3015 PRINT"
3020 PRINT:PRINT"WHEN GIVEN ANY WEAPON'S YIELD THEN THIS
3030 PRINT"PROGRAMME CALCULATES THE RANGE TO WHICH
3040 PRINT"EACH OF EIGHT DIFFERENT LEVELS OF OVER-
3050 PRINT"PRESSURE WILL EXTEND. DETONATION HEIGHT
3060 PRINT"HAS BEEN SELECTED TO GIVE OPTIMUM RANGE"
3070 PRINT"FOR ALL THE LEVELS IN TURN.  THIS RANGE
3090 PRINT"HAS BEEN UNDERLINED.  THE OVERPRESSURES"
3100 PRINT"GIVEN COVER FROM 1 PSI TO 20 PSI.
3110 PRINT:PRINT
3120 PRINT"
3130 PRINT"          |PRESS ANY KEY TO CONTINUE|
3135 PRINT
3140 GETA$:IFA$=""THEN3140
3150 PRINTCHR$(147):RETURN
```

Reel-to-Reel Rom

*A short program allowing you to copy your CPC464's Rom to tape – written by **Peter Paton***

Many Amstrad users have come up with routines for *Peeking* the Rom's in the CPC464. This short program takes the idea one step further, in that it also saves a memory image of the Rom on cassette.

It is not possible to *Peek* the Rom's directly from Basic for reasons which are beyond the scope of this short article; suffice it to say that we must resort to a small machine code routine which enables the Rom to be *Peeked*, and creates a memory image in lower Ram where it can be accessed easily.

On first running the program you will be presented with an option to copy either the upper or lower Rom. Selection is made by pressing either 'U' or 'L' in either upper or lower case. The memory image of the Rom takes only a second or so to produce, and a suitable message is displayed to tell you that this has been completed.

You will then be instructed to insert a blank cassette and press the *Play & Rec* keys on the cassette unit, and then any key to make the tape copy. This saves eight blocks of code which are named *Upper Rom* or *Lower Rom* depending on which you are copying.

The machine code routine employs one of the many advanced features of the Z80 CPU, the *Ldir* instruction, and works as follows (see Listing One).

Ldir takes the contents of the address held in the *HL* registers and places the byte in the address held in the *DE* registers. Both *HL* and *DE* are then incremented, and the value held in the *BC* registers is then decremented. This sequence continues until the value of the *BC* registers becomes zero.

This is one of the best ways of demonstrating the speed with which machine code is able to copy an entire 16k block of code, and the economy of code as it all takes just 18 bytes.

As for the rest of the program goes (Listing Two), I have tried to make use of some of the easier features of Amstrad Basic, particularly those which help to make screen layout neat and tidy, especially the *Locate* command and the control characters 18 and 20. *Chr$(18)* clears the current screen line from the cursor position to the right hand edge of the window, and *Chr$(20)* clears from the cursor position to the end of the window. These can be used to good effect for removing screen messages and prompts which are no longer needed. I have also used *Chr$(24)* which prints a message in reverse field for highlighting.

In Line 140 I have used the INSTR function, another powerful Basic command which enables the detection of a sub-string within a longer string. In this case it detects the position of either U or L in answer to the first prompt, and directs the program to the proper *Data* statement in order to select the right machine code routine.

One of the more convenient features of Amstrad Basic is the ability to convert lower case letters to upper case with the *Upper$* function (sadly missing in many machines.) As used in Line 90 it will accept both upper and lower case in answer to the prompt.

For those who are not familiar with the method of saving a block of memory to cassette see Line 380 *Save"!"+t$,b,5000,16384*

This will save a block of code with the filename held in t$ starting at address 5000 decimal, and 16384 (16K) bytes long. The exclamation mark after the *Save* turns off the regular Amstrad cassette messages, and so allows me to use my own messages in Lines 190-200. If you use this in your own programs you must remember that it does not wait for a key to be pressed either, consequently if you don't start the cassette in time you may miss saving the first part of the file. (however, line 210 takes care of this problem)

Once the *Rom's* have been copied to the cassette by this programme you will be able to examine them under a disassembler. Remember though when you are looking at the code that it is not in its rightful place, so an instruction to jump to a specific address should actually be given an offset according to which Rom image you are looking at, and the address at which the code was loaded into the disassembler. For example, if you are examining an image of the lower Rom, and you have loaded the code at address #5000, then when you look at address #5000 you are actually looking at address #0000.

Program Notes:

30-120	Select the Rom to be copied (Upper or Lower)
140	Select the appropriate machine code routine
150-160	Print message to confirm that a Rom has been copied
170-270	Save Rom image to cassette (Fast speed used)
290-320	Option to re-run and copy other ROM
340-370	Poke machine code into Ram and CALL it
380	Return to main program after copying ROM
390-440	DATA containing the machine code routine

The *Call &BB18* instruction in Line 210 halts program execution until any key has been pressed.

In order to load the machine code into Ram it is necessary to lower the top of useable RAM this is however reset to its usual value when you select the option to quit the program.

This is one of those rare programs which, at least in theory, get used only once. However, knowing the peculiarities of the Amstrad cassette unit, I would not advise you to throw it away. You never know when the dreaded *Read Error* will strike again!

Listing One

```
CALL      #B900       ; Enable the UPPER ROM to be accessed.
LD        BC,#4000    ; Load the BC register pair with the block length
LD        HL,#C000    ; Load the HL register pair with the start address
LD        DE,#1388    ; Load the DE register pair with the destination
LDIR
CALL      #B903       ; Disable the UPPER ROM
```

continued over the page

Listing Two

```
10 REM   A program to make tape copies of the Amstrad ROM's
20 REM   Copyright P. Paton  1984
30 MODE 2
40 REM ########### Select Upper or Lower ROM ###########
50 LOCATE 5,1:PRINT"Which ROM Do You Wish To Copy:
60 LOCATE 5,5:PRINT"'U'  = Upper ROM
70 LOCATE 5,7:PRINT"'L'  = Lower ROM
80 LOCATE 25,6:PRINT" ? ";x$=INKEY$
90 IF x$="" THEN 80 ELSE x$=UPPER$(x$)
100 LOCATE 25,6:PRINT CHR$(24);" ";x$;" ";CHR$(24)
110 FOR w=1 TO 1000:NEXT
120 IF x$<>"U" AND x$<>"L" THEN PRINT CHR$(7):GOTO 80
130 REM ##########  Select Machine Code Routine #########
140 ON INSTR("UL",x$) GOTO 390,420
150 IF x$="U" THEN LOCATE 25,6:PRINT"Upper ROM Copied Into RAM":GOTO 180
160 LOCATE 25,6:PRINT"Lower ROM Copied Into RAM"
170 REM ############ Save ROM Image To Tape ################
180 FOR i=1 TO 1000:NEXT:LOCATE 20,20
190 PRINT"Insert A Blank Tape Then Press PLAY & REC"
200 LOCATE 25,22:PRINT"Press Any Key To Save"
210 CALL &BB18
220 LOCATE 1,20:PRINT CHR$(20)
230 IF x$="U" THEN t$="UPPER ROM" ELSE t$="LOWER ROM"
240 LOCATE 25,6:PRINT"Saving ";t$;" Please Wait";CHR$(18)
250 SPEED WRITE 1
260 SAVE"!"+t$,b,5000,16384
270 LOCATE 25,6:PRINT CHR$(18)
280 REM ############ Re-Run Option #####################
290 LOCATE 20,20:PRINT"Press 'R' To Re-Run, Any Other To Quit";CHR$(20)
300 x$=INKEY$:IF x$="" THEN 300
310 IF UPPER$(x$)<>"R" THEN CLS:MEMORY top:END
320 RUN
330 REM ############## Poke Machine Code Into High RAM ###########
340 top=HIMEM:i=30000:MEMORY 29999
350 FOR d=1 TO 18
360 READ byte:POKE i,byte:i=i+1:NEXT
370 CALL 30000
380 GOTO 150
390 RESTORE 400:REM  Data for upper Rom
400 DATA &cd,0,&b9,1,0,&40,&21,0,&c0,&11,&88,&13,&ed,&b0,&cd,3,&b9,&c9
410 GOTO 340
420 RESTORE 430:REM  Data for lower Rom
430 DATA &cd,6,&b9,1,0,&40,&21,0,0,&11,&88,&13,&ed,&b0,&cd,9,&b9,&c9
440 GOTO 340
```



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We'll call you . . .

A general purpose input subroutine for the BBC micro
by Calvin Woodings

This program provides a compact yet fully error trapped, general purpose input routine which can be tucked away in a page of the Beeb's memory and called from either Basic or machine code programs It makes no demands on any of the memory space outside the chosen page, providing the input string length is kept to below 40 characters

Page Nine (P% = &900) is chosen in the listing, and this would suit disc users *Page C* would be best for cassette users, and in this case change P% to &C00 in line 100

When you have typed it in, *Save* it and then *Run* it to see how it works When you are sure there are no mistakes, and if you want to save the machine code to add to future programs, use **Save Input X00+100*, where *X* is the number of the page you chose at Line 100.

The machine code, can be reloaded with **Load Input* When calling the routine from another Basic program, you simply have to add to the program your own version of Lines 1270 to 1310, and to make sure that the variables *"input"* and *"string"* are declared before the code is called

"Input" will be the page you decided to use in Line 100 *"String"* will be &XD0 for the correctly entered listing, but will change if you alter the routine (its new value can be found by asking the computer to *Print*string.)

The *Printtab* statement (line 1270) could be altered to put the cursor where you want it, and the variable *A%* should be set to the number of characters you wanted to get in *X%* should be set to the lowest acceptable *Ascii* code, with 32 being the absolute low number, to avoid the control code *Y%* should be set to the highest *Ascii* code, eg, 90 to get all the capitals, but no lower case, or to a maximum of 126 for all printable characters

For instance, if you were getting in a single number as a response to a menu of six items, you would set *A%* to 1, *X%* to 49 (*Ascii* code for "1") and *Y%* to 54 (*Ascii* code for "6"). The routine would then only respond to these six numbers, to "*" for access to star commands (see below, and to *Escape* Other key presses would just give a warning "*beep*".

The routine automatically enters a *Return* and therefore ends when the last character is typed in Up to this point, you can delete mistakes with the delete key and retype The dots on the screen show you graphically where you are in the input string If you wish to enter fewer letters than indicated by the dots, pressing *Return* will allow you to finish before the end The machine code handles the *Escape* key in the manner recommended by the User Guide page 446

Finally, if you enter an asterisk as the first (and only the first) character of your input you are automatically put into the command line interpreter routine provided by BBC Basic, to allow access to the operating system. This enables you to carry out any of the star commands from your program. (See pages 400, 416, 418 etc, 463 of the User Guide)

The listing will work on Basic 1 and 2 Readers with Basic 2 could if they wished use their pseudo-ops (Equb etc) to avoid leaving the assembler to put the text in (Lines 580-620, and 1200-1220)

```
10 REM GENERAL PURPOSE INPUT SUBROUTINE
20 REM FOR THE BBC MICRO
30 REM (c) C.R.Woodings
40
50 osrdch=&FFE0
60 oswrch=&FFEE
70 osbyte=&FFF4
80 osnewl=&FFE7
90 oscli=&FFF7
100 FOR PASS=0 TO 3 STEP 3:P%=&900
110 [OPT PASS
120 .input
130 STA strlen              A% SAVED
140 STX losasc              X% SAVED
150 STY hiasc               Y% SAVED
160 TAX                     X=STRINGLENGTH
170 LDY#0
180 STY flag                FLAG CLEARED
190 .inputln                PRINTS A ROW OF
200 LDA# ASC"."             DOTS TO INDICATE
210 JSR oswrch              STRING LENGTH
220 DEX
230 CPX# 0
240 BNE inputln
250 LDX strlen
260 .backspc                MOVES CURSOR TO
270 LDA# 8                  START OF INPUT LINE
280 JSR oswrch
290 DEX
300 BNE backspc
310 LDX strlen
320 .loop                   START OF MAIN LOOP
330 JSR osrdch
340 CMP# &0D                RETURN KEY PRESSED?
350 BEQ return              YES
360 CMP# ASC"*"             ASTERISK PRESSED?
370 BNE ntask               NO  CONTINUE INPUT
380 CPY# 0                  WAS IT FIRST KEY?
390 BNE ntask               NO  CONTINUE INPUT
400 LDA# 12                 YES, CLEAR SCREEN
410 JSR oswrch
420 JSR osnewl
430 JSR osnewl
440 LDA# ASC"*"             PRINT ASTERISK
450 JSR oswrch
460 LDX# 39                 SET UP AN INPUT
470 STX strlen              LINE TO TAKE
480 LDA# 32                 A COMMAND FOR THE
490 STA losasc              COMMAND LINE
500 LDA# 90                 INTERPRETER USING
510 STA hiasc               THIS INPUT ROUTINE
520 INC flag                SET FLAG TO ENTER
530 JMP inputln             CLI NEXT TIME THRU
540 .ntask CMP# 27          WAS ESCAPE PRESSED?
550 BNE ntesc               NO, CONTINUE INPUT
560 LDA# &7E                YES, ACKNOWLEDGE IT.
570 JSR osbyte
580 BRK:]                REM PROVIDE ERROR MESSAGE
590 ?P%=17               REM SEE U.G. PAGE 446
600 $(P%+1)="ESC"        REM PRINTS ON ESCAPE
610 [illegible]
620 [OPT PASS
630 BRK
640 .ntesc
650 CMP# 127                WAS DELETE PRESSED?
660 BNE ntdel               NO  CONTINUE
670 CPX strlen              ANYTHING TO DELETE
680 BEQ loop                NO  GO BACK FOR MORE
690 JSR oswrch              PRINT DELETE
700 LDA# ASC"."             AND REPRINT DOTS
710 JSR oswrch
720 LDA# 8                  PRINT BACKSPACE
730 JSR oswrch
740 INX                     UPDATE POINTER
750 DEY                     SHORTEN INPUT STRING
760 .ntdel
770 CMP losasc              IS THE CHAR. IN
780 BCC beep                RANGE?
790 CMP hiasc
800 BEQ print
810 BCS beep                NO, WARN WITH A BEEP
820 .print                  YES, PRINT IT
830 JSR oswrch
840 STA string,Y            AND ADD TO STRING
850 INY                     UPDATE POINTER
```

continued over the page



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BBC & Electron

```
960 DEY
870 CPY£ 0                  \ ALL CHARS IN? IF
880 BNE loop                \ NOT GO BACK FOR MORE
890 .return                   ADD RETURN TO END
900 LDA£ &0D                  OF STRING
910 STA string,Y
920 LDA flag                \ IS STRING TO GO TO
930 CMP£ 0                  \ COMMAND LINE INTERPRETER?
940 BEQ end                 \ END IF FLAG=0
950 JSR osnewl                PRINT NEWLINE AND
960 LDX£ string MOD 256     \ ENTER THE COMMAND LINE
970 LDY£ string DIV 256     \ INTERPRETER
980 JSR oscli
990 LDY£ 0
1000 .loop2                   PRINT MESSAGE TO
1010 LDA mess,Y             \ HOLD CLI INFO. ON
1020 JSR oswrch             \ SCREEN UNTIL KEY
1030 INY                    \ IS PRESSED
1040 CPY£ 9
1050 BCC loop2
1060 JSR osrdch               WAIT FOR KEY PRESS
1070 .end
1080 RTS
1090 .beep                    WRONG KEY, SO BEEP
1100 LDA£ 7
1110 JSR oswrch
1120 JMP loop                 BACK FOR MORE
1130 .strlen NOP
1140 .loasc NOP
1150 .hiasc NOP
1160 .flag NOP
1170 .mess ]
1180 $P%="Hit a key"
1190 P%=P%+9
1200 [OPT PASS
1210 .string NOP
1220 ]
1230 NEXT
1240
1250 REPEAT                   REM DEMO LOOP
1260 CLS
1270 PRINTTAB(0,2);           REM POSITION INPUT LINE
1280 ?strlen=40               REM STRING LENGTH
1290 ?loasc=32                REM LOWEST ASCII INPUT
1300 ?hiasc=90                REM HIGHEST ASCII INPUT
1310 CALL input
1320 PRINTTAB(0,12)$string
1330 REPEAT PRINT "PRESS ANY KEY"
1340 UNTIL GET
1350 UNTIL FALSE
```

HEX DUMP FOR INPUT ROUTINE

```
0900   3D CC 09 8E CD 09 8C CE ........
0908   09 AA A0 00 8C CF 09 A9 ........
0910   2E 20 EE FF CA E0 00 D0 . ......
0918   F6 AE CC 09 A9 08 20 EE ...... .
0920   FF CA D0 F8 AE CC 09 20 .......
0928   E0 FF C9 0D F0 6F C9 2A .....o.*
0930   D0 39 C0 00 D0 2E A9 0C .'....%..
0938   20 EE FF 20 E7 FF 20 E7  .. .. .
0940   FF A9 2A 20 EE FF A2 27 ..* ...'
0948   8E CC 09 A9 20 8D CD 09 .... ...
0950   A9 5A 8D CE 09 EE CF 09 .Z......
0958   4C 0F 09 C9 1B D0 0E A9 L.......
0960   7E 20 F4 FF 00 11 45 53 ~ ....ES
0968   43 61 70 65 00 C9 7F D0 Cape....
0970   14 EC CC 09 B0 B1 20 EE ...... .
0978   FF A9 2E 20 EE FF A9 08 ... ....
0980   20 EE FF E8 8E CD CD 09  .......
0988   90 3A CD CE 09 F0 02 B0 .'......
0990   33 20 EE FF 99 DF 09 C8 3 ......
0998   CA E0 00 D0 8A A9 0D 90 ........
09A0   DF 09 AD CF 09 C9 00 F0 ........
09A8   1A 20 E7 FF A2 DF A0 09 . ......
09B0   20 F7 FF A0 00 B9 D0 09  .......
09B8   20 EE FF C8 C0 0F 90 F5  .......
09C0   20 E0 FF 60 A9 07 20 EE  ..`.. .
09C8   FF 4C 27 09 0A 20 46 00 .L'.. F.
09D0   50 72 65 73 73 20 61 6E Press an
09D8   79 20 6B 65 79 20 0D EA y key ..
09E0   00 00 00 00 00 00 00 00 ........
09E8   00 00 00 00 00 00 00 00 ........
09F0   00 00 00 00 00 00 00 00 ........
09F8   00 00 00 00 00 00 00 00 ........
```



notes all at the same time)

At the press of a button, you can summon up pre-programmed rhythms and bass accompaniments to play along to

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Open Forum

We are always actively seeking programs for publication – either for Open Forum, the machine pages or Star Game. When sending in a program for consideration, a clear program listing should be sent together with, wherever possible, a saved copy on cassette. Documentation – usually not more than 1000 words – should start with a general description of the program, what it does, and then some detail of how the program itself is constructed. We pay very competitive rates, according to the length and nature of the program and the quality of the accompanying documentation.

Data Finder

on Spectrum

This program can take the data that's on the screen and put it into any user-defined character key that you want. All you have to do is direct the block cursor around the screen by using the cursor keys. Once you have found the right place then all you have to do is press the key '0' and enter the key you with to put the UDG into. Once this is done the computer will show the data and the UDG on #0.

Once you have used up all 21 graphic's then you can save them by pressing Enter.

Program Notes
Lines 3-4 move the block cursor around the screen.
Line 13 asks for the Letter for the UDG.
Line 14 *Pokes* A$ with the data from the memory addresses of I.
Line 15 *Prints* the data at the bottom line.
Line 18 asks if you have a micro-drive and want to use it.

If you don't have a micro-drive then you don't need to type in lines 18 to 21 and change *Gosub* 18 Line 2 to *Load"" Code*.

Key 5 moves you left, 6 moves you down, 7 moves you up, 8 moves you right and '0' asks what key you want for the UDG.

```
1 REM        **** DATA FINDER By JOHN DOCHERTY ****
2 GOSUB 16:LET X=0:LET Y=0
3 LET X=X+(INKEY$="8")-(INKEY$="5"):LET X=X+(X<0)-(X>31)
4 LET Y=Y+(INKEY$="6")-(INKEY$="7"):LET Y=Y+(Y<0)-(Y>21)
5 PRINT AT Y,X;OVER 1;"█"; AT Y,X;OVER 1;"█"
6 IF INKEY$="0" THEN GOSUB 8
7 GOTO 3
8 DIM Z(8)
9 IF Y<8 THEN LET A=0:LETC=16384
10 IF Y>7 AND Y 16 THEN LET A=8:LET C=18432
11 IF Y 15 THEN LET A=16:LET C=20480
12 LET B=0
13 INPUT "WHAT LETTER DO YOU WANT (A - U only).";A$:IF CODE A$<65 OR
CODE A$ 85 OR LEN A$ 1 THEN GOTO 13
14 FOR I=C+X+((Y A)*32) TO C+X+((Y-A)*32)+8*255 STEP 256: POKE
 USR A$+B PEEK(I): LET B=B+1: LET Z(B)=PEEK(I): NEXT I
15 PRINT#0;FLASH 0;Z(1);",";Z(2);",";Z(3);",";Z(4);",";Z(5);",";Z(6);
",";Z(7);",";Z(8)
16 IF INKEY$=CHR$(13) THEN INPUT"ARE YOU SURE YOU WANT TO SAVE
THE  GRAPHICS  (Y/N) ";Z$: IF  Z$="Y"THEN SAVE"graphics" CODE
USR "A",168
17 RETURN
18 INPUT "Do you want to LOAD a SCREEN$ from micro-drive ?";A$
19 IF A$="Y" OR A$="y"THEN INPUT"What is the name of the SCREEN$ ?"
;B$:INPUT "Which drive ?";A:LOAD*"m";A;B$ SCREEN$: RETURN
20 LOAD "" SCREEN$
21 RETURN
```

Data Finder
by J Docherty

The Music Box

Critical look

I've just received a letter from David Reed of Crofton Park, South East London on the subject of the *Acorn Music 500*. David is an electronic engineer and only an amateur musician. Having seen the 500 at Compec he was, however, sufficiently impressed to buy one for his BBC.

A long phone conversation with David made it clear that he has nothing but praise for the hardware itself. As for *Ample* – the music programming language devised by Hybrid Technology to control the 500 – David writes that it "is not really difficult to use although it takes some time to get used to. While the demonstration music is clever, I think that it would have been prudent to include a simple tune played in three part harmony with a listing of it in the manual along with explanations of how it was put together. Even without such an example," writes David, "I have learnt a lot about the *Ample* language in the past five weeks, and have since transcribed from manuscript a large amount of music with complete success."

Like myself, David reserves his major criticisms for the Music 500 manual. It appears that the manual alone was not adequate to the job of explaining how to use the Music 500, and David needed to talk with the people from Hybrid Technology at a couple of exhibitions.

The manual comes in for criticism for its presentation – it has been set on a dot matrix printer – and for its general lack of clarity. "The reference section," writes David, "lists all the commands available although some of the examples shown are complex and not easily understood."

Since *Ample* is, in effect, a whole new programming language, the task of learning it deserves a more comprehensive treatment than the manual offers. As it stands, the manual seems to require a fairly high level of musical understanding and programming ability.

If anyone is interested in getting in touch with David, or indeed in communicating their own experiences with computer music, please write. I'd be especially interested in hearing cassettes of musical experiments.

Gary Herman

The Music Box is a new weekly column with news, reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to Gary Herman, The Music Box, 12-13 Little Newport Street, London WC2R 3LD.

Open Forum

Search

on CBM 64

Search is a machine code routine that searches for data in a program and displays the line in which the data appears. It should be useful during the creation of a long program, to obtain immediate access to a label in a Rem statement, for example, or to find out which lines, if any, have *Goto* instructions referring to a line whose number is to be changed.

It could also be used for information retrieval. Perhaps the most convenient way of sorting information in the CBM 64 is to set it out in program lines, and *Search* could be used to look for names.

The starting address for the code (50000) can be changed by altering Line 20. The instruction for search should be written in this way: *Sys 50000,10Goto 123*

Sys 50000 calls the routine. This is followed by *10*, ie, the number of the line from which the search is to begin. *Goto 123* is the datum to be sought. If the information containing the datum is inside inverted commas (or in a Rem or data statement), the second comma of the instruction should be replaced by inverted commas.

```
10 REM *** SEARCH ***
20 S=50000
30 FOR P=S TO S+94
40 READ D POKE P,D:NEXT:END
100 DATA 32, 115, 0, 32, 107, 169, 32, 19, 166, 32
110 DATA 115, 0, 165, 123, 133, 252, 165, 122, 133, 251
120 DATA 162, 0, 160, 3, 200, 177, 95, 208, 16, 160
130 DATA 0, 177, 95, 170, 200, 177, 95, 240, 50, 133
140 DATA 96, 134, 95, 200, 231, 65, 122, 208, 231, 200
150 DATA 177, 95, 201, 32, 240, 249, 32, 115, 0, 240
160 DATA 14  209  95, 240, 240, 165, 251, 133, 122, 165
170 DATA 252, 133, 123, 200, 206, 160, 2, 177, 95, 133
180 DATA 20, 200, 177, 95, 133, 21, 76, 167, 166, 32
190 DATA 115, 0, 208, 251, 96
```

Search
by D Devlin

Arcade Avenue

Claim to fama

Two more names to go into the *Pyjamarama* annals of fame. First is Paul Hewitt of Coventry who solved the game on November 4 with 96% and yet claims to still be addicted. For those who are still having difficulty, despite the tips we published a few weeks ago here are some more from Paul. "To use the rocket to get to the moon, collect the bucket and fill it with water from the bathroom tap. This enables you to get past the snapping plants, which are up the stairs by the rocket, to get the fuel can. This is filled by passing over the area marked energy. Once on the moon you need the laser to pass the space invaders (leave the gun on the moon to keep them away permanently then go back to get the magnet). If you have lost a life you can get it back by clearing all six screens in the video room."

Paul goes on to give us a warning about games to avoid. "*Alien Kill* by Mastertronic and *Dungeons of Doom* by Temptation are both not worth the time it takes to load them – not up to the standard of a magazine listing."

Stuart Adam of Chorleywood looks set to be the first person who has finished it on the Commodore 64 with 89% after 4432 paces. Stuart offers us these extra tips. "To get the square key you have to put the fire out in the roof – then fall down and *Run*. To get the fire extinguisher you need a hammer so you have to spend a penny" (but where do you get a penny? perhaps you need to change a pound). "When you get the laser gun you need to get the battery pack to charge it – the pack is in the room next to the 1 ton weight but you will need the triangle key to get it into it." Should be easy now eh?

Now then, on to *Daley's Decathlon*. Thanks to Simon Martin of Barnsley and his friend Mark Pinder (and also Nick Fisk of Bridgend) for the following high scoring bug. "On the high jump I can achieve 2m 7cm by jumping under the pole and landing on the mat – this can be done when the bar is above 2m 38. Above 2m 70 the crowd's heads knock the bar off. My high scores are 100m – 6.52s, long jump 11.86m, shot put 33.89m, high jump 2m 70, 400m 27.30s, 110m hurdles 9.96s, pole vault 5m 6, discus 75m 90, javelin 132.45m, 1500m 248.16s."

"Please could you print some *Pokes* for the Vic 20 game *Perils of Willy* – I've got to the 18th screen with 41 010."

Now if Mr I Bright of Darlington is reading this, then can I assure you that although you can crash your Spectrum by messing around with *Pokes* it is impossible to do any permanent harm to it. The problems you are discussing sound like you have a hardware fault – in fact it may be a faulty power connection which should be looked at by someone who knows about electronics. Is it still under guarantee? I'm sorry the *Hunchback* poke did not work – why ent try this one from David "Supergrass" McNeal of Clevedon to get infinite lives for the same game *Poke 28888,0*. "Also if you walk as far as you can to the left of the screen the knight that chases you appears to go through you."

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7LD

Open Forum

Trainer

on Vic 20

Not very fast on finding your way around the keyboard? After a few minutes on this program you will be a lot faster. The computer displays a random character on the screen, you have to hit that key as soon as you find it (it also displays the character at a random time interval, so you don't know when it is going to appear). It displays your time in seconds. It also keeps a best time and after 7 goes it displays your average time. You have a choice of 2 levels.

Level (1) you are tested only on the alphabet.

Level (2) you are tested on the alphabet, digits (0-9) and the signs +, -, *, /, =

My best average time is about 1.03 seconds. Can you beat it?

Program Notes

Line No	
1	Define characters
5	Set screen
8-50	Pick random character
55	Set screen. Prints ready. Wait about 2.5 seconds
70-80	Wait random time. Advance to 599 if user pressed key
100-110	Prints up the character you have to find. Starts timing
120-130	Did user hit correct key, if so advance to 600
600-690	Stops timing. Displays grade, time, best time and if 7th go display average time
699-710	Starts the program again.
800-940	Instructions
1000-1030	Stores data

```
1 [illegible] 6
[illegible]
[illegible] D-1TOL
10 GOSUB800
20 RESTORE R=INT 1*RND(RND(0) [illegible]
30 FORD-1TOR
40 READA$
[illegible] E 1
[illegible] PRINT [illegible] READ [illegible] FORJ-1T[illegible]
[illegible] INT(50+300*RND 0
[illegible] 9 15: PRINT [illegible] F1
[illegible] FORD 1TO[illegible]
[illegible] GET[illegible]
[illegible] IF [illegible] THEN[illegible]
[illegible] NEXT
100 PRINT [illegible] A$
110 S=TI
120 IFX$=A$THEN[illegible]
125 GET [illegible]
130 GOTO120
600 [illegible] D-E S P=D 60
[illegible] L-L+1 AA AA+P
[illegible] PRINT"[illegible] FUREDoo 9 218
610 IFP 7THENPRINT EXCELLENT!! " GOTO660
620 IFP 1.5THENPRINT VERY GOOD!! GOTO660
630 IFF [illegible] THENPRINT WELL DONE GOOD GOTO660
640 IFP 4THENPRINT NOT VERY GOOD GOTO660
650 IFP [illegible] PRINT HOPELESS!!!
660 PRINT [illegible] YOUR TIME WAS [illegible] SECONDS
[illegible] IFP L THEN [illegible]
[illegible] PRINT [illegible]BEST TIME I[illegible] ED
[illegible] IFL=[illegible] [illegible] OUT OF [illegible] YOUR
    AVERAGE TIME [illegible] SECONDS
670 PRINT [illegible] KEY
680 GETD$ IFD$ [illegible]
[illegible] IFL=[illegible]THENRUN
[illegible] GOTO[illegible]
[illegible] POKE36879 93
700 PRINT "[illegible]TOO SOON" FORI-1TO2500 NEXT
710 GOTO[illegible]
800 PRINT "[illegible] TRAINER[illegible]"
810 PRINT BY M.REEVE
820 PRINT "THIS PROGRAM DISPLAYS A RANDOM LETTER OF THEALPHABET
830 PRINT ONE OF THE DIGITS OR ONE OF THE BASIC MATHEMATICAL"
840 PRINT"SIGNS + - *,/ ="
850 PRINT THE COMPUTER WILL DISPLAY THE SIGN IT HAS CHOSEN YOU
860 PRINT HAVE TO PRESS THAT KEY AS SOON AS YOU CAN
862 PRINT"THE COMPUTER DISPLAYS YOUR AVERAGE TIME AFTER [illegible]
865 PRINT [illegible] A KEY
867 GETI$ IFI$ [illegible] THEN86[illegible]
870 PRINT "[illegible]YOU HAVE AN OPTION -"
880 PRINT "1 TO BE TESTED JUST ON THE ALPHABET"
890 PRINT 2 TO BE TESTED ON THE ALPHABET DIGITS AND THE MATHS SIGNS"
900 INPUT "1 OR 2" T
910 IFT=1ORT=2THEN920
915 GOTO900
920 IFT=1THENRN=26 RETURN
930 RN=41
940 RETURN
1000 DATAA,B,C,D,E,F,G,H,I,J,K,L,M
1010 DATAN,O,P,Q,R,S,T,U,V,W,X,Y,Z
1020 DATA1,2,3,4,5,6,7,8,9,0
1030 DATA+,-,*,=
```

Trainer
by M Reeve

Book Ends

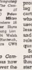
Book *Easy Programming Commodore 16* **Price** £5.95 **Micro** Commodore 16 **Supplier** Shiva Publishing Limited, 64 Welsh Row, Nantwich, Cheshire CW5 5ES

Whenever a new micro appears a spate of beginner's guides follows, but their quality can be variable to say the least! Ian Stewart and Robin Jones's contribution to the C16 flood comes under the banner of Shiva's Friendly Micro series, and it's not only amiable but also a good no-nonsense guide to the machine's Basic.

It moves from first principles to cover most topics concerning the C16 at some speed, but in a style that comfortingly indicates it's written by humans for humans. There are plenty of questions and projects to spur active involvement too.

In short a guide that should suit the first-time owner, though the lack of an index is a serious omission in a book as densely packed as this.

John Minson



Book *Gateway to Computing With The Commodore 16 (Book2)* **Price** £4.95 **Micro** Commodore 16 **Supplier** Shiva Publishing Limited, 64 Welsh Row, Nantwich, Cheshire CW5 5ES

The *Gateway to Computing* series has now expanded to cover the Commodore 16, providing an introduction to Basic which is primarily intended for younger users.

Having been unimpressed by an earlier volume I was pleased to see that this, the second of three, maintains the standard. Ian Stewart's approach is lively and light, using Goonish characters and cartoons to create situations which the computer can be used to solve. Thus stops the lessons looking like lessons and stresses their practical relevance. There are also frequent questions to answer.

Sadly, buying all three parts will prove costly, though the second volume starts with a recap of keywords already encountered and proceeds to cover a good amount of ground in an enjoyable and extremely unintimidating fashion.

John Minson

Tony Bridge's Adventure Corner



Doomdark details

"The brave and free fear no foe. Forth, mighty hosts of Midnight! Unto death or victory we go!" This very poetic outburst is your reward for surviving the wrath of Shareth the Heartstealer, the daughter of Doomdark.

Doomdark's Revenge is the second in the epic trio of programs from the evil imagination of Mike Singleton, and has proved to be a worthy follow-up to that most stunning of programs, *Lords of Midnight*. The new program, in any other circumstances, would be a sensation, but is, in fact a more subtle re-working of the original program. True to the tradition set by all major adventures, the Grand Elf has had several letters of the "Am I the first?" variety. In this case, the first that I received was from Iain Gibson. His name will be familiar from the LOM Corner of last week, and he wrote to me to say that his "overwhelming victory" occured at about 8pm on Tuesday, December 1984. He thus beat the next victor by some 12 days.

Iain, being the intrepid explorer he obviously is, has a few tips for other players. "The manual says 'The Watchtower of the Icemark may hold dark secrets, approach with care!' In fact, the Watchtowers act like the Towers of Midnight – that is, they provide information. The manual also says that Tarithel will not succeed in her Quest on her own. This is not true, as I managed to rescue Morkin without using any other characters. Much as I like the program, it does, however, have its problems. Loading is often difficult and occasionally, during the night, the game stops and will not restart. A friend has found that characters sometimes move, inexplicably, overnight, leading to the strange situation of those characters ending up in the Icy Wastes. Anyway, *Doomdark's Revenge* is a great game, and I can't wait for *The Eye of the Moon*."

The second letter to the Grand Elf came from Snotty of Newcastle (yes, that Snotty!), who defeated Shareth and returned with the warriors of Midnight to the Gate of Varenorn in 116 days. Snotty hinted at Morkin's whereabouts – other players could try going to the North East corner, where a Pit may reward investigation.

Harry Wright, the third person who has met the Beyond challenge, managed to complete the game in 77 days (game time). He has some interesting points to make. "Recruiting is not as straightforward as in *Midnight*. For example, characters of one 'ethnic' type (Fey, Barbarian etc.) are not necessarily any more successful in recruiting other characters of the same type. In particular, some of the Fey are particularly difficult. The owner of a City is usually able to recruit the inhabitants of the surrounding fortresses.

"In your wonderings, you will come across four distinct types of objects.

Weapons. These are distributed widely and there is one weapon for each individual character. Each type of weapon is associated with a particular group of characters:

Swords with Icelords
Spears with Barbarians
Bows with Fey
Hammers with Giants and
Axes with Dwarves (when did Dwarves wield anything else?) When in possession of their own weapon (for example, when *Carangrave* the Giant has the Hammer of Carangrave), an additional option will appear, so 'Use Hammer of '. When used, the weapon will restore the strength and morale of the character and his army. One other advantage of carrying their own weapon is that they are more frequently informed of Shareth's whereabouts when they arrive at Towers.

Crowns: There are at least three crowns – Varenand, Carudium, and Imriel. These crowns have certain properties, and Caradrium may only be used by Morkin, Imriel (I think!) by Shareth, and Varenand by Luxor. It's possible that the first two may only be used at certain locations, but Varenand may be used anywhere – at a Palace, the effect is to immediately summon all those characters under Luxor's command.

The Spell of Thigrorn: this enables Tarithel (and others?) to move immediately to Morkin.

The Runes of Finorn: I discovered these during one of my earlier games, but haven't their precise use. It's important to note that each object may be used once only."

There is, as you will be aware, an awful lot of hyperbole (affectionately known as 'hype'!) used in this business, as in others, but I fine this series of adventure/strategy/war games really live up to the promises of the adverts. They have obviously given hours of pleasure to many thousands of players. The lands of Midnight and Icemark, and the characters therein, have become close friends to these players, and, without exception, the letters I've received from people who have completed one or other of the games, or from those who are still struggling, praise the author, Mike Singleton, for his beautiful creation. We're all looking forward to the third and (boo-hoo) final part of the Midnight saga. Wishful thinking leads me to wonder if Mike will one day release a 'skeleton' game into which modules may be loaded – there are many people, after all, who can't imagine life without Morkin, Luxor and the rest.

Next week, the Grand Elf will be looking at certain other adventuring nobility – but to finish with let's have a look at a book which should give BBC adventurers some sore fingers.

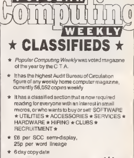
One of the things that make Infocom adventures so different from lesser products, is the "total environment" supplied with the package. That is, not only do you get the disk, but also several clues to solving the game. Thus, there may be included a matchbook with a hastily-scrawled telephone number, or a newspaper clipping (sometimes a whole newspaper!), and various other paraphernalia, all going to create an atmosphere before the disk is even booted. Until now, this scene-setting has not been used in a book of listings, but the publishers Addison-Wesley have come up with just such a thing.

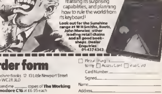
Arendarvon Castle is written by Hal Renko and Sam Edwards, and is for the BBC micro. While some 30-odd pages contain the listing and playing instructions for the adventure, the first, and much longer, part of the book takes the form of a dossier. This contains a huge number of clues for the adventure in masses of newspaper clippings, a guide to the Castle, magazine articles about Sorcery and Magic among many other things, lots of drawings and photographs – and more besides.

But don't be alarmed – the program is almost entirely in machine code, with a *Basic* handler, so that typing it all in won't spoil your enjoyment and give away any secrets. The program, written by Arend Rensink (I imagine that the formula will, or has been, converted to several other micros), is huge and, thank goodness, the author has split up the work into seven sections labelled, of course, with the days of the week! There is a cassette available for those of us who can't bear the thought of slogging away at typing in line after line of 'DATA 0081 14X7 ZA7B SCBR' and so on (that's a bit of Tuesday's code). The book is a very good read (and the adventure's not bad), and is the first in a series, *The Antagonists* and *The Seventh Generation* being the others. News on availability for other micros as soon as I know.

This series of articles is designed for novice and experienced Adventurers alike. Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter. So if you have an Adventure you want reviewed or if you are stuck in an Adventure you cannot progress any further write to Tony Bridge, Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.


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Peek & Poke



Not perfect

Rajeev Mehta of Heaton, Bolton, writes

Q **I own a BBC B and find that many of the programs that I buy are not perfect. I would be highly obliged if you could tell me how to list them so that I can alter them. I would also like to know how I could save them on to a blank tape.**

A The ultimate question! There are ways of breaking in to commercially produced programs, but unfortunately (for us) they are all technically in breach of the laws of copyright, as is copying on to a blank tape. Also, most of the programs you are likely to buy are going to be written in machine code, so you would need an assembler/disassembler to be able to make the necessary corrections, if you could work them out that is.

The easiest way to copy one cassette tape to another (this also applies to music cassettes) is to use tape to tape recording. As long as both recorders (or ideally use a dual cassette recorder) are compatible (or of similar manufacture) you should have no problems. However, copies such as these should only be used for experimental purposes and not for producing 'freebies' for friends.

Printer problems

C N Gardner of Newcastle Upon Tyne, writes

Q **I own a ZX81 with a Memotech 64K memory and have been using, without any problems, utility software programs written in machine code, ie, a database, an assembler and recently a word processor. To make use of the latter I bought an Alphacom 32 printer which is adequate for my current needs.**

The problem is that with the printer connected, all my programs crash, although they load OK. I have used two other Alphacom printers with the same result. On removing the printer from the system everything works normally again.

There is no problem when writing programs in Basic and I understand that the Alphacom was specifically designed for the American version of the ZX81. Is there any way I can amend my software by ***Peeking*** **or** ***Poking*****, or am I stuck with an unusable printer?**

A As you say the printer works when used by a Basic program, I suspect that your problem lies with the location of your machine code programs. It would appear that they are using the memory set aside for the printer buffers, and printer control areas. If this is so, then I am afraid that your only course is to relocate the programs, at a different start address.

Peripheral power

W L Caton of Thaxted, Essex, writes

Q **I own a 16K Spectrum and am concerned about the number of peripherals I have. I have a Cheetah keyboard, Interface I, two microdrives, Fuller master unit, 32K Cheetah Ram pack, and Ram turbo joystick interface.**

I am not sure whether my power supply can cope with any more peripherals. Is there any way I could add extra power for more units, and could it damage my computer if I do not.

A I don't think that you have anything to worry about. The power to drive these units is well within the capacity of the power supply. Obviously if your were to add a printer to your set up (not a ZX printer) then that would come with its own power supply unit. The ZX printer in any case does not require a great deal of power.

I cannot envisage a situation at the moment where it would not be possible for the power supply unit to handle any new devices that you might wish to attach. In any case you would not damage the computer if there was not enough power, simply nothing would run.

Damaged machine

P Towers of Luton, Bedfordshire, writes

Q **I have a problem with my Oric 1. A couple of days ago I inadvertently plugged the lead in between pins 33 and 34 of the bus expansion socket while the power was on. I usually reset my Oric by unplugging and re-plugging the mains lead because the reset button is in such an awkward place. Now the computer doesn't work and all I've got are continually jumping vertical lines on the screen. I am pretty sure that I have damaged something. What I want to know, if possible, is what have I done, and where can I get it fixed.**

A I am afraid that you have damaged your machine, to an extent where you will have to have it repaired by an expert. Any firm that specialises in micro computer repairs will be able to assist you. Over the weeks (or maybe it is months), I have mentioned many of these firms in response to questions from other unlucky people like yourself.

I would guess that the cost of repairing your machine will not be very great, so it is not all bad news. As a start try contacting Hemel Computer Centre Limited, on 0442 212436. They may well be able to help.

Pascal or Forth?

A Jarrett of Folkestone writes.

Q **I am considering buying a Pascal compiler for my micro; however, a friend has told me that Forth is faster. Is this true?**

A A number of benchmark tests have been done on these two languages. In most cases Forth has come out best in terms of speed. Against that however, is the fact that Pascal is easier to write in than is Forth.

Pascal is also a language which is taught widely in colleges whereas Forth is not so widely used. But my own choice would be for Forth.

Bad behaviour

K Foster of Dundee, writes

Q **Can you help? My 48K Spectrum has suddenly begun behaving very badly. Games that used to load OK, now fail to load. Everything seems to be all right, until loading has completed, then I get the famous 'black screen'. Is this the end?**

A Not necessarily. It could be that you are having tape loading errors possibly caused by the age of the tapes. In cases such as these it is always worth examining the loader program. This is the short Basic program that is used to load the rest of the game.

Most of these loaders have *Poke* statements in them to set *Err Sp* to zero. If you remove these statements, by using *Merge* " ", deleting the offending statements and issuing *Run*, you may have more success.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Phil Rogers and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2R 3LD


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b/w SPECTRUM and Int 1 Microdrive 7 cartridges, Inter 2 + ROM Cart and joystick tape recorder £200 of original software inc Beachhead + Ghostbusters Sell for £350 ono or exchange for Amstrad or Elan Enterprise Buyer must collect. Tel (0278) 85747 after 5pm all vgc

SPECTRUM SOFTWARE White Lightning £10 Blue Thunder and Wheelie £4 each Meteor Storm Frenzy Timegate Slippery Sid and The Train Game £3 50 each Black Crystal (unboxed) £3 00 Tel Ferndown 887018

SPECTRUM 48K/ISSUE almost new £100 Hardware manual manual £4 ROM Disassembly (Logan) £5 Spectrum interfacing project £3 Alphacom printer £030 Spectrum machine code £4 Many magazines cheap Tel 061-432 4538 or 061-881 9036

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48K SPECTRUM Interface I + 1 microdrive 2 cartridges ZX printer s/w books Tel Little Gaddesden 3567

SPECTRUM 48K Fuller FDS keyboard microdrive spare cartridge Quick Shot Joystick II Data Recorder Currah speech synthesiser light pen unit top quality games books, mags £530 o n o Tel 01 771 3448 after 6pm.

SPECTRUM S/W all originals Manic Minor £3 50 Monty Mole £4 50 Code Name Matt, Frank n Stein £4 Tel 061 436 3366

48K ZX SPECTRUM boxed v g c 1 year old Power Pack, leads manual inc £100 Tel 01 837 5784

48K SPECTRUM £35 of s/w v.g.c still boxed £90 o n o Tel Luton 419468

48K SPECTRUM I3 + manuals + demo tape, £30 s/w £75 Tel 01-883 1436

48K SPECTRUM £70 Tel Ashstead 77314 (Surrey)

SPECTRUM 48K plus sound power base turbo interface + joystick + ZX Printer + DKTronics light pen Currah Speech £200 ono Tel 01 603 6838

SPECTRUM 48K with £175 of original software worth £300 accept £180 Tel 031 669 5204 after 6 30 pm.

48K SPECTRUM + Fuller FDS keyboard + Fuller master unit + Kempston joystick interface + software worth £280 Overall worth £500 Sell for £250! Tel Sheffield 556659 after 4pm

SPECTRUM RAM turbo interface plus Quickshot II joystick used only once cost £32 accept £15 Write S Johnson 78 Nairn Street, Crookes Sheffield S10 1UN or Tel 0742 681671

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CBM C2N data recorder brand new unused £25 o n o Tel Grantington 28087

VIC20 C2N cassette player £70 worth of original s/w intro to basic I mags joystick book £280 Sell £180 Tel 01-478 8782.

ADVENTURE HELPLINE

Quest on Commodore 64 I have got the sword but I am unable to get out of the first set of rooms Mrs L Brandon, c/o Metal Supplies Mill Road Sharnbrook, Bedfordshire

The Hobbit on Commodore 64. I can't get past the bulbous eyes How do I kill the dragon? How do I find the bard get into the barrel go through the magic door and get to lake town? Chris Johnson 208 Kentmere Avenue Seacroft, Leeds 14

Kentilla on Spectrum. I've found the small key but it will not open any of the three doors Result I'm not progressing! Chris Banner 2 Mill Hill Road Hinckley Leicestershire LE10 0AX.

Temple of Vran on Spectrum I can not get through the hole I cannot cross the quicksand Help Andrew Kerr 8 Ballindean Road Dundee DD4 8NL.

Gems of Stradus on Amstrad I cannot get across the pit. I cannot pass the guard. I don't understand the dark room the pool room or the snake G Harrison, 10 King Edward Avenue Mansfield Notts NG18 5AF

Hobbit on Commodore 64. I cannot get out of the goblin's dungeon Steven Coyne Garden Flat, Rougemont Easthill Road, Ryde Isle of Wight PO33 1LS

Adventure on ZX81 Where do you find the key to the door and what use is the Acorn? Steven Crump 47 Duke Street Rowley Regis Warley W Midlands

Forest at World's End on Amstrad. Please help me kill the elf. Mrs L Attree 12 Forge Close Eythorne Kent CT15 4BG

Castle of Terror on Commodore 64 How do you get out of the treasure chamber which has no visible doors? Stewart waite 31 Cowan Road Catterick, N Yorks DL9 4DN Tel. Richmond 866789

Spiderman on Spectrum How do you make the web-fluid? How do you take the gem from the Sandman? Mat thew Wilson 39 Wedderburn Road, Woodlands, Harrogate N Yorks

Forest at Worlds End on Amstrad. Are the crystals of vulcan in the chest? How do you open it—where is the key? Nigel Cresswell 18 Cheviot Close, Durrington Worthing Sussex BN13 2LL

King Arthur's Quest (Hill-McGibbon). How do I get through the door from the keep to the chapel how make a spell work? N Stevens 8 Humphrey Close Clayhall Ilford Essex.

COMPUTER SWAP

Computer Swap entries are limited to 30 words Either fill in the accompanying form and send to Computer Swap *Popular Computing Weekly* 12-13 Little Newport Street, London WC2R 3LD or telephone 01-437 4343

All software offered through computer swap must be in original condition and for private sale only

It cannot be swapped
Warning It is illegal to advertise pirated software

COMPUTER SWAP

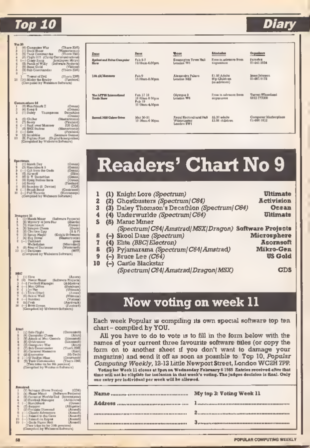
Please write your copy in capital letters on the lines below

Name ....

Address ....

....

Telephone ....



Top 10

Vic 20
1 (4) Computer War (Thorn EMI)
2 (1) Duck Shoot (Mastertronic)
3 (5) Tank Commander (Thorn EMI)
4 (6) Flight 015 (Craig Communications)
5 (—) Crazy Kong (Intelligent Micro)
6 (2) Perils of Willy (Software Projects)
7 (9) Boss Gold (Visions)
8 (8) Sub Commander (Thorn EMI)
9 (—) Tower of Evil (Thorn EMI)
10 (10) Micky the Bricky (Firebird)
(Compiled by Websters Software)

Commodore 64
1 (3) Hunchback II (Ocean)
2 (4) Kong 0 (Ocean)
3 (1) Daley Thompsons Decathlon (Ocean)
4 (2) Chiller (Mastertronic)
5 (7) Booty (Firebird)
6 (—) Raid over Moscow (US Gold)
7 (6) BMX Racers (Mastertronic)
8 (—) Solo (Firebird)
9 (3) Scrabble (Leisure Genius)
10 (8) Fighter Pilot (Digital Integration)
(Compiled by Websters Software)

Spectrum
1 (1) Match Day (Ocean)
2 (3) Hunchback 2 (Ocean)
3 (—) Cult from the Gods (Ocean)
4 (5) Airwolf (Elite)
5 (6) D T Decathlon (Ocean)
6 (8) Kyang Fuches Ista (Ocean)
7 (4) Booty (Firebird)
8 (8) Snooker (S Davies) (CDS)
9 (—) Smash Road (Centresoft)
10 (—) Full Throttle (Micromega)
(Compiled by Websters Software)

Dragon 32
1 (1) Manic Miner (Software Projects)
2 (8) Mystery of Java Star (Shards)
3 (3) Hunchback (Ocean)
4 (8) Dragon Chess (Oasis)
5 (6) Chuckie Egg (A & F)
6 (3) Space Magic (Knight Software)
7 (4) Bug Diver (Mastertronic)
8 (—) Cuthbert goes Walkabout (Microdeal)
9 (8) Ring of Darkness (Wintersoft)
10 (—) Database (MST)
(Compiled by Websters Software)

BBC
1 (1) Elite (Acorn)
2 (2) Manic Miner (Software Projects)
3 (—) Football Manager (Addictive)
4 (—) Mini Office (Database)
5 (—) Jet Pac (Ultimate)
6 (—) Elite (Disc) (Acorn)
7 (5) Sabre Wulf (Ultimate)
8 (—) Sunoko (Visions)
9 (4) Frak (Aardvark)
10 (—) Boss Drops (Firebird)
(Compiled by Websters Software)

Atari
1 (1) Solo Flight (Centresoft)
2 (4) Computer Chess (Atari)
3 (5) Attack of Mini Camels (Llamasoft)
4 (8) Gridrunner (Llamasoft)
5 (3) Computer War (Atari)
6 (7) Sub Commander (Thorn EMI)
7 (6) Carnival Massacre (Atari)
8 (2) Encounter (Hi-Tech)
9 (—) O'Reillys Mine (Centresoft)
9 (9) Tank Commander (Thorn EMI)
(Two titles tie for 9th position)
(Compiled by Websters Software)

Amstrad
1 (1) Bolmont (Steve Davies) (CDS)
2 (4) Manic Miner (Software Projects)
3 (8) Forest at Worlds End (Interceptor)
4 (2) Football Manager (Addictive)
5 (—) Hunchback (Ocean)
6 (3) Snapper (Alligator)
7 (8) Fantastic Diamond (Amsoft)
8 (—) Classic Adventure (Amsoft)
9 (—) Roland in the Cave (Amsoft)
10 (—) Roland on Ropes (Amsoft)
10 (—) Code Name Mat (Amsoft)
(Two titles tie for 10th position)
(Compiled by Websters Software)

Diary

Event	Dates	Venue	Admission	Organisers
Apricot and Sirius Computer Show	Feb 5-7 10.00am-6.00pm	Kensington Town Hall London W8	Free in advance from organisers	Paradox 01-641 2554
15th ZX Microfair	Feb 9 10.00am-6.00pm	Alexandra Palace London N22	£1.25 Adults 80p Children (in advance)	Mike Johnston 01-801 9172
The LET'85 International Trade Show	Feb 17 18 10.00am-6.00pm Feb 19 10.00am-4.00pm	Olympia 2 London W8	Free in advance from organisers	Turret-Wheatland 0923 777000
Second MSX Colour Show	Mar 30-31 10.00am-6.00pm	Royal Horticultural Hall Westminster London SW1	£2.50 adults £1.25 children	Computer Marketplace 01-930 1612

Readers' Chart No 9

1 (1) Knight Lore *(Spectrum)* **Ultimate**
2 (3) Ghostbusters *(Spectrum/C64)* **Activision**
3 (2) Daley Thomson's Decathlon *(Spectrum/C64)* **Ocean**
4 (4) Underwurlde *(Spectrum/C64)* **Ultimate**
5 (5) Manic Miner *(Spectrum/C64/Amstrad/MSX/Dragon)* **Software Projects**
6 (–) Skool Daze *(Spectrum)* **Microsphere**
7 (4) Elite *(BBC/Electron)* **Acornsoft**
8 (5) Pyjamarama *(Spectrum/C64/Amstrad)* **Mikro-Gen**
9 (–) Bruce Lee *(C64)* **US Gold**
10 (–) Castle Blackstar *(Spectrum/C64/Amstrad/Dragon/MSX)* **CDS**

Now voting on week 11

Each week Popular is compiling its own special software top ten chart – compiled by YOU.

All you have to do to vote is to fill in the form below with the names of your current three favourite software titles (or copy the form on to another sheet if you don't want to damage your magazine) and send it off as soon as possible to Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 11 closes at 5pm on Wednesday February 6 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... My top 3: Voting Week 11
Address .... 1..
.... 2..
.... 3..

New Releases

MID-AIR

I honestly don't know about this one *Brian Bloodaxe*, it seems, has already been declared a goodie, a mega, bees knees, a must have, etc, etc, in advance It becomes a bit difficult to keep one's reviewing perspective.

The first thing to be observed is that, as The Edge tacitly (well overtly really) admits, the whole thing is inspired by *Jet Set Willy* to a degree that would make me, if I were a games programmer, ashamed, but then I don't drive a Turbo Porsche There are three Brian Bloodaxes that dance back and forth just like the three miners at the bottom of the Miner screen, there are stepping toilet seats, keys and many other wacky characters completely or partly derived from Willy.

Since the whole program is done very much as a joke, you could argue that these are more by way of tribute than rip-off, but I doubt any royalties are being paid

Anyway, *Brian Bloodaxe* isn't just another Willy clone.

For one thing there are over 100 screens, each of them reasonably different from the last This is, of course, pretty clever The trade off is that many of the graphics are low res like teletext, consequently few of the backgrounds have the kind of detail found in *Jet Set Willy*.

On the other hand apart from the background, the various moving objects are large sprites which give the game a pleasing cartoony atmosphere

The plot is very difficult to describe The end result is that you must find the crown jewels and sit on the throne, this involves the Miner like surmounting of various objects have to be used in various unlikely ways to solve particular problems

One further doubt – the actual position register seems very clumsy, often you seem to be able to stand in mid air This is unlike *Jet Set Willy* where the position that you had to jump from was precisely defined seemingly on a pixel basis This detracts from the game considerably since it introduces an arbitrary element so that, to a large extent, it doesn't matter exactly where you jump

Similarly, when you tie the 'rub out' is amazingly crass, big chunks of sprite disappearing suddenly

You might love it, but at £7 95 it's definitely worth getting a good look at first I found it interesting, but irritating and derivative

Program *Brian Bloodaxe*
Price *£7 95*
Micro *Spectrum*
Supplier *The Edge*
31 Maiden Lane
Covent Garden
London WC2E 8LH

BORROWED

Blagger was one of the very earliest *Manic Miner* clones and as such I suppose it has a little more credibility than the current spate of dull replicas

Although the heart of the game is left/right/jump, the plot (as ever) disguises its origins quite well. The idea is that you are Roger the Dodger (well, at least it doesn't alliterate), a house breaker and each screen shows a different house, bank, etc

In practice though, the fun ny wobbly things strange carts, bizarre animals, walkways, crumbling floors and carefully timed leaps make it absolutely obvious where the ideas were borrowed from

Nevertheless, there are far fewer Miner lookalikes on the Amstrad than on the Spectrum and C64 and this is undoubtedly one of the best

Program *Blagger*
Price *£7 95*
Micro *Amstrad*
Supplier *Amsoft*
Brentwood House
169 Kings Road
Brentwood
Essex

COMPULSIVE

Dragon's Gold is one of the many games Bomik are converting for the Amstrad and also one of the oddest Odd in that for a game which objectively has little merit, I found myself playing it fairly compulsively

It's a multi screen dodge and blast game – I say multi, but actually there are six screens all of them amazingly simple in terms of design and reasonably easy to master

The plot involves getting through the screens, each one featuring different sorts of baddies which wander about.

If you survive long enough in each screen a pathway to the next screen opens With the possible exception of the Dragon in the last screen, the graphics are fairly full and the backgrounds merely a chunky arrangement of blue blocks Naff graphics, six screens, what greater indictment could there be? Well, I don't know but I quite enjoyed it – the fact that it is almost possible to get all the way through kept me slugging away at it where other games would have fallen On the other hand, I suppose once I have done every screen I won't want to play it again How fickle

Program *Dragon's Gold*
Price *£7 95*
Micro *Amstrad*
Supplier *Amsoft*
Brentwood House
169 Kings Road
Brentwood
Essex

This Week

Program	Type	Micro	Price	Supplier
Dragon's Gold	Ad	Amstrad	£7.95	Amsoft
Pyjamarama	Arc	Amstrad	£7.95	Amsoft
Classic Racing	S	Amstrad	£7 95	Amsoft
Software Star	S	Amstrad	£7.95	Addictive
Atari Smash 1	Arc	Atari	£14 95	English
Atari Smash 2	Arc	Atari	£14 95	English
Atari Smash 3	Arc	Atari	£14 95	English
Colossus Chess	Ut	Atari	£12.95	English
Contract Bridge	S	BBC	£9.95	Alligata
Fmon	Ut	BBC	£9	Fmon
Music Maker	Ut	BBC	£9	Fsoft
Supervisor	Ut	BBC	£14 95	US Gold
Upper Gumtree	Ad	Commodore 64	£6.50	Richard Shepher
Bigtop Barney	Arc	Commodore 64	£9 95	Interceptor
Caverns of Khillac	Arc	Commodore	£5 95	Interceptor
Penetrator	Arc	Commodore 64	£6 95	Melbourne Hse
Sentinel	Arc	Commodore 64	£9.95	US Gold
Waterski 3D	Arc	Commodore 64	£7 95	Alligator
Witchswitch	Arc	Commodore 64	£9 95	English
Battle for Normandy	S	Commodore 64	£14.95	US Gold
Combat Leader	S	Commodore 64	£14.95	US Gold
Contract Bridge	S	Commodore 64	£9 95	Alligata
Software Star	S	Commodore 64	£7.95	Addictive

New Releases

BOUNCE

Hellfire is the largest Spectrum release from Melbourne House and it's a very strange sort of game indeed.

In fact, it is really three games all neat and with pretty graphics They don't have any real link with each other whatsoever and give the impression that they are all to do with the trials of Ulysses A dubious connection, methinks.

Nevertheless the games are quite good fun, the first has you jumping up on rocky ledges to reach a cave whilst dodging boulders It's a matter of working out where to jump, in a vaguely *Miner*, *Donkey Kong* like way and this turns out to be a matter of looking carefully at the shading hills.

The second section is my favourite bit, here you must avoid the nasty monster and find your way to the top of a temple Getting to the top of the temple requires much deviousness apart from the monster there is the problem that passing behind pillars makes you reappear somewhere completely different in the temple

To get to the higher levels you need to bounce on what looks like a mattress

The final screen is a maze in which you do battle with a reptile and a fireball thrower – get past them and Elysium bliss is yours

It's odd, I quite enjoyed it, I suppose, but it really is like three different games. Curate's egg, I suppose.

Program *Hellfire*
Price *£6 99*
Micro *Spectrum*
Supplier *Melbourne House*
Castle Yard House
Castle Yard
Richmond
TW10 6TF

CHESTNUT

If I were to go blah, blam, eweeeee, errrrghh, wooooooooo, char char char char krang, and if I were to add "Beam me up, Scotty" and "We canna go any faster cap'n, the ion pulse drives will'ner take it" you would immediately grasp that we are talking about here is a version of that old chestnut of old chestnuts *Star Trek*.

The game of *Star Trek* has cropped up in dozens of different guises under dozens of different names The basic ingredients, starmaps, hyperspace, sectors to be cleared, long and short range scans and space battles have been used both within pure strategy games and blast a minute shoot-em-ups *Sentinel* is one of the latter.

This latest import from US Gold had your lone battle cruiser battling it out with Gamma Fighters, aided only by some base stations where you may refuel and repair, thoughtfully scattered through the galaxy by Starfleet Maps show where goodie and baddie bases are located, scanners tell you where space fleets are. In short, there's a lot going on

The crux of the game, however, is the battle sequences where you spin and turn, blasting away at the variously coloured baddies that zoom in at you – the 3D effect is OKish rather then brill *Star Trek* is and always will be a good game for what you might term the computer buff equivalent of Heavy Metal Headbangers.

This is no exception, although it gets close to zero for originality and the graphics aren't really as great as the blurb on the back might suggest to you.

Program *Sentinel*
Price *£9 95*
Micro *Commodore 64*
Supplier *US Gold*
Unit 10
The Parkway
Industrial Centre
Heneage Street
Birmingham B7 4LY

PASSWORD

Desk Diary is a neatly packaged and fairly sophisticated diary program for the Commodore 64 It comes as a glossy booklet into which are inserted the program disc and a data disc to store your records What the program does is exactly the same as what an ordinary diary is used for, although the information may be used in a variety of different ways and guises

One thing that home computer owners seem to like but which always seems to me largely irrelevant (who'd put private secrets and information on a home micro) is the provision of a password. *Desk Diary* has this facility and will not allow you to access the data disc without one.

Essentially what you get is a dedicated filing system – you create files and names, telephones numbers, favourite restaurants, adresses, as well as keeping engagements, meetings, financial information and the like, and can access the details Getting at the information is slickly done The screen shows appointments in a window which you can scroll left or right using cursor keys All files are compatible with *Easyscript*

All other information is divided over three screens and includes space for important dates, world currency prices, and red letter days You may reconstruct the computer screen layouts to incorporate the particular details relevant to you, eg, club membership numbers, etc The program can search for any text or date string up to 22 charac-

This Week

Contract Bridge	S	Electron	£6 95	Alligata
Contract Bridge	S	MSX	£6 95	Alligata
Unique Assembler	Ut	QL	£22.95	D Bando
Attack of the Empire	Arc	Spectrum	£5 95	Chibur
Brian Bloodaxe	Arc	Spectrum	£7 95	The Edge
Meteor Rescue	Arc	Spectrum	£5.95	Chibur
Monty is Innocent	Arc	Spectrum	£6 95	Gremlin Graphic
Software Star	S	Spectrum	£6 95	Addictive
Supermind	S	Spectrum	£2 95	A + B
Take Over	S	Spectrum	£6 95	Chibur
BMX Champions	Ut	Spectrum	£2.50	Chibur
Character Designer	Ut	Spectrum	£6 95	Chibur
Music Composer	Ut	Spectrum	£5.95	Chibur
Titan	Ut	Spectrum	£6	Tommorrow's Dream

Key **Ad** – adventure **Arc** – arcade **Ed** – education
S – strategy-simulation **Ut** – utility

Pick of the week

TOP OF THE CHARTS

As Football Manager reaches new heights of almost mythological greatness beyond the reach of a mere critic, we await with interest the fate of Kevin Toms' latest program *Software Star*. In *Software Star* your task is to run a successful software company and meet profit targets set by your board of directors – since hardly anybody in the real computer industry has managed to do this, it is, as you can imagine, a very difficult game

The idea is that, armed with your bank overdraft, you run a software company attending to the day to day business of survival, nurturing games into development, promoting them through advertising and, hopefully, watching their progress to the top of the charts

The game can be incredibly subtle, for example even very successful games 'wear out', ie, gradually sell less and less. Should you spend more on advertising them to keep sales up, or less since the thing isn't selling anywhere anyway? Similarly the longer a game is left in development the better its quality rating, the better the reviews and, probably, the higher the sales. The problem is that games in development simply cost money rather than earn it

There are countless decisions to be made, including trading style (hype or honesty? The latter isn't always the best policy), advertising expenditure, workers morale, etc. The culmination is the monthly chart where you watch each your games slowly ascend or descend the charts. It's very exciting with just that smidgeon of luck to make the end result a surprise and a number one still a joy

Football Manager was a game to live with, to play over and over again. I can't yet say that is the same, but it's certainly compulsive. Also versions for Amstrad and Commodore 64

Program *Software Star*
Price *£6.95*
Micro *Spectrum*
Supplier *Addictive*
7a Richmond Hill
Bournemouth
BH2 6HE

ters. All in all, it's a very professional product. Whether it's all a bit wasted on a home computer with a disc drive so slow as to quite possibly make any day to day use irritatingly ponderous, I'm not sure

Program *Desk Diary*
Price *£29.95*
Micro *Commodore 64*
Supplier *Associated Services Ltd*
23 Chesham Street
London SW1X 1NQ

INVISIBLE

Monty Mole is Innocent is the sequel to *Monty Mole*, the almost political satire. In some ways it is more ingenious than the original and – like *Knight Lore* you get a 3D view on the action

The plot involves finding a key which will release Monty Mole from prison where he has been sentenced to five years. The prison is chock full of sprites representing policemen, skeletons, skulls, ghosts, etc, etc. Here and there are useful objects like a potion to make you invisible and guns with five bullets each

Part of the fun of the game is finding out just where you can go – new areas of prison are often made available in unsuspected ways, none of which I will reveal here for fear of spoiling the game

Gremlin Graphics has decided to take its chances with the hideous Spectrum colour res problems. With the extensive use of colour and the large number of sprites, this can lead to frequent colour clash problems – sometimes so bad that it is difficult to tell exactly where your hero, Sam Stoat is standing. I can't help thinking that the ultimate approach of just using two colours must be the right one

Nevertheless, the game works well, there is much to explore and much that is original. Few disappointments from this one I think.

Program *Monty is Innocent*
Price *£6.95*
Micro *Spectrum*
Supplier *Gremlin Graphics*
Alpha House
10 Carver Street
Sheffield S1 4FS

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD

This Week

A + B, A + B P G Solon 11c Eylendjia Nicosia, Cyprus **Addictive**, 7A Richmond Hill Bournemouth BH2 6HE **Alligata**, 1 Orange Street Sheffield S1 4DW **Amsoft**, Brentwood House 169 Kings Road Brentwood Essex 0277 230222 **Chibur**, 3 Lonsdale Street, Leicester LE2 1BP 0533 547070 **D Bendo**, 81 Mount Pleasant, Wembley, Middx HA0 1UD 902 1871 **English**, Box 43, Manchester M60 3AD 061 835 1358 **Fmon**, PO Box 352 Brighton BN1 3AY, 0273 736042 **Gremlin Graphics**, Alpha House 10 Carver Street Sheffield S1 4FS 0742 753423 **Interceptor**, Interceptor Micros, Lindon House The Green, Tadley Hampshire 07356 71145 **Melbourne House**, 39 Milton Trading Estate Abingdon Oxon OX14 4TD, 0235 835001 **Richard Shepherd**, Elm House 23-25 Elmshott Lane Cippenham Slough, Berks, 06286 63531 **The Edge**, 31 Maiden Lane, Covent Garden London WC2E 8LH 01-240 1422 **Tomorrow's Dream** Richmond House, 1B Sydenham Road, Bristol BS6 5SH, 0272 47860 **US Gold**, US Gold Unit 10 The Parkway Ind Centre, Heneage Street Birmingham B7 4LY, 021 359 3020

This Week is a new section that covers all the new software coming on to the home micro market each week. All suppliers should send details of their new programs to This Week, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD



Teutonic market

Looking round the magazine stands in a typical German newsagents you could be forgiven for thinking for a moment that you were back in England. A year ago, there were few computer magazines on the shelves, but now the racks are groaning under the weight of almost as many titles as are available back at home. Even the names on the covers seem familiar – *Micro, Computer Technik, Happy Computer, Ti Revue, Apples, Heim + Personal Computer Report*.

Looking inside, you can see the speed with which trends fly between European countries. This month's *Computer Praxis* magazine (a slightly more glossy, up-market version of *Your Computer*) contains reviews of the QL, the Spectrum+ and the Rotronics Wafadrive. Prices compare favourably with those in this country, Sinclairs, Commodores and BBCs costing virtually the same, with Electrons slightly cheaper at about £170 in some places.

Other articles review an 80-column card and an *Eprom* burner for the Commodore 64, there is a long look at both the film and the *game of Ghostbusters* and there is a section of software reviews that may seem somewhat dated to English eyes. Games reviewed include *Jet Set Willy, Psytron, Manic Miner, Valhalla* and *The Hobbit* (still in "Inglish"). The real surprise comes when you look at the balance of the feature articles: Commodore 5 articles, Sinclair 4 articles, Texas Ti 99/4A 4 articles, Atari 2 articles, Schneider 2 articles.

It's clear that Commodore does well in Germany as does Sinclair, but this brief analysis shows up the results of differing marketing strategies when machines like the Ti 99/4A and Atari 600 are seen to be so popular. If you are wondering what the Schneider is, then the model number should give a clue – CPC 464, available with built-in cassette recorder and B/W or colour monitor – none other than our good old Amstrad being marketed with a German name!

There is nothing like *Popular Computing Weekly*, although the monthly *Heim Computer Report* probably compares fairly well. This looks like a magazine until you unfold it, when you see that it is printed more like a tabloid newspaper so it's not so easy to read on public transport. January's edition has an in-depth review of the Commodore C16, a large section on different communication protocols, teach-yourself Pascal, hacking on Bildschirmtext (German Prestel), and many software reviews. There are also two pages of "Tricks und Tips fur Dragon 32 und C64" which is rather out of date. An example is the high speed poke for the Dragon which was last mentioned in this magazine about two years ago.

Towards the end are listings and a classified section, but alas, no Tony Bridge or Automata cartoon. Perhaps the most interesting feature in this magazine is a long listing for the C64, called Zeppelin II. At last, I thought a game of Teutonic aerial skill, bombing London to smithereens. But no! The instructions translate thus: "You are the pilot of an English Bristol fighter F 2B in the First World War. Your mission is to annihilate the German Zeppelin ..."

John Scriven

Squared, then cubed

Puzzle No 143

'This is an interesting number' remarked Professor Hex as he chalked it on the blackboard. "Nine digits, all different and no zero."

There was a moment's silence before Pythagoras Perkins piped up, "I see that it can be expressed as $x^a * y^b * z^c$ where x,y,z,a,b, and c are all different positive integers!"

"Er, yes,' replied the Professor rather uncertainly, "I was thinking of something a bit less complex. You see this number is simply the difference between a certain number cubed and that same number squared. That's all, nothing involved!"

Can you discover what the Professor's number was?

Solution to Puzzle No 138

The number was 89843

It is necessary to find a five-digit number which 13 less than 13 times the product of the digits. As the number must therefore itself be a factor of 13, the program can be made to run more efficiently by testing only multiples of 13 in Line 10. The program takes each number in turn, finds the product of its digits, multiplies by 13 and checks to see if this result is 13 more than the original number.

```
10 FOR N=10010 TO 99999 STEP 13 20 LET N$=STR$(N) 30 P=1 40 FOR F=1 TO 5 50 LET P=P*(VAL (MID$(N$,F,1))) 60 NEXT F 70 IF N+13=13*P PRINT N 80 NEXT N
```

Winner of Puzzle No 138

The winner of Puzzle 138 is L Morris of Longacres Drive, Whitworth, Rochdale, Lancs, who receives £10

Rules

If the puzzle can be sensibly solved using a computer, then the winner will have included a listing of the program used to find the correct answer. The closing date for Puzzle No 143 is February 15

The Hackers

We'll have to put 406 in solitary for his own protection - he hasn't had a dog's life since the other cons learned he's in for computer fraud.

HM PRISON GRIMSDYKE

RECREATION AREA

Look at my listing first.

I can't follow this manual.

There's a bug in my machine code routine.

Can you check this core dump?

You said you'd help debug this program.

Hey I'm before you!

I've got a weird syntax error here...

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ATARI

64

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GREAT GOOGLIE-MOOGLIES! WE'VE BUT A FEW TITLES REMAINING!
MAYBE THE LITTLE PINK NIT'S LOONY PLAN WASN'T SO LOONY AFTER ALL!
ONLY THOSE LEFT NOW
10 PACK
GO TO JAIL
DEUS EX MACHINA
WE MIGHT AS WELL HAVE ONE MORE LOONY SALE - JUST TO SHIFT THOSE TAPES
JUST WHAT I WAS THINKING - BUT DON'T LET'S TELL PIMAN OR HE'LL GET TOO COCKY!
MEANWHILE, THE OTHERS HAVE A TOUGH TIME TAMING THE PRECOCIOUS PIANA...
BED? ARE YOU CRAZY?! IT'S ONLY 6 O'CLOCK!!
HONK
SPLOK
OOGH
THERE NOW! YOU CAN'T BE IN THE ADVERT UNTIL YOU'RE GROWN UP LIKE ME, SEE!
GROWN UP? HOW OLD ARE YOU THEN?
OOH - ABOUT 2½!
HEY, CLAIR, AH TINK WE SHOO SEND DAT KID TO SCHOOL BUT ITS YOUR OPINION DAT COUNTSH
WHY DO YOU SAY THAT?
SO PIANA IS SENT TO SAINT MULHFUNK'S MIXED BOARDING SCHOOL
WELL, THAT'S THE LAST WE'LL SEE OF HER 'TIL HALF TERM HOLS. WHERE ARE YOU GOING, PIMAN?
TO DANCE AROUND CROUCHER AND PENFOLD, CHANTING DERISIVE SLOGANS THE WHILE! JUST LOOK AT THIS WEEKS ORDER COUPON!
AND I KNOW YOUR HOOTER HURTS - BUT WHY BANDAGE IT UP LIKE AN ANCIENT EGYPT MUSEUM EXHIBIT?
MUMMY NOSE BEST!
BE GOOD DARLING! BYEEEE
SPLOK
WANNA TOFFY?
HALF A COUGH!
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